United States Department of Agriculture

NRCS

Natural Resources Conservation Service

In cooperation with Virginia Polytechnic Institute and State University

Soil Survey of Tidewater Cities Area, Virginia

How To Use This Soil Survey

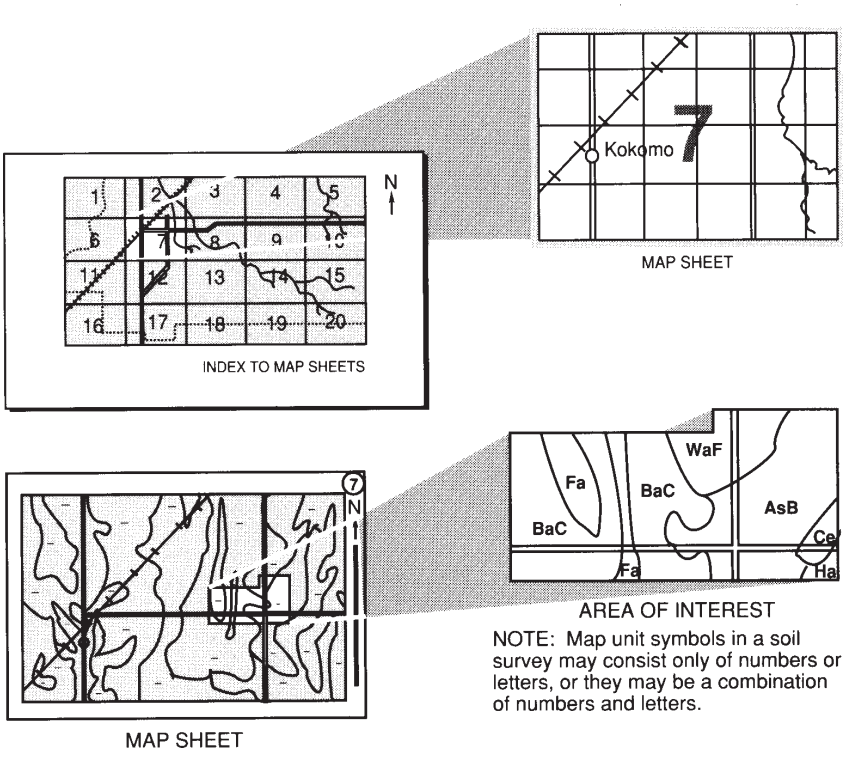
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the Virginia Polytechnic Institute and State University. Financial assistance was provided by the Virginia Department of Conservation and Recreation and the Hampton Roads Planning District Commission.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. The most current official data are available on the Internet at http://websoilsurvey.nrcs.usda.gov.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover Caption

A view from the city of Portsmouth looking across the Southern Branch of the Elizabeth River into the city of Norfolk.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

John A. Bricker
State Conservationist
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Soil Survey of Tidewater Cities Area, Virginia

By Pamela J. Thomas, PhD, and John David Harper, Jr., Natural Resources Conservation Service

Fieldwork by Michael Newhouse, Virginia Polytechnic Institute and State University

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with Virginia Polytechnic Institute and State University

The Tidewater Cities Area is located in the eastern part of Virginia (fig. 1). It makes up 226,373 acres, or 385 square miles. The survey area includes the cities of Hampton, Newport News, Norfolk, Poquoson, and Portsmouth. It is bounded on the north by James City County and York County, on the west by the city of Suffolk, on the east by the city of Virginia Beach, and on the south by the city of Chesapeake.

Fort Eustis has not been mapped as part of this soil survey. All other Federal land within the cities has been mapped as part of this soil survey.

General Nature of the Survey Area

This section provides general information about the survey area and describes the climate in the survey area.

This survey contains information that can be used in land-planning programs in the cities of Hampton, Norfolk, Newport News, Poquoson, and Portsmouth, Virginia. It contains predictions of soil behavior for selected land uses. The survey also highlights

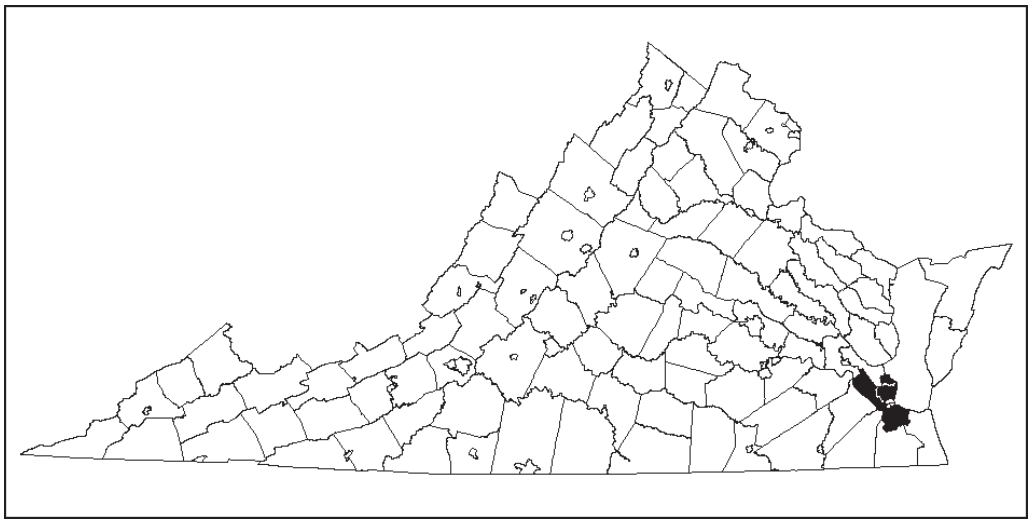

Figure 1.—Location of Tidewater Cities in Virginia.

limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

Climate data are provided in tables 1, 2, and 3. The data were recorded at Langley Air Force Base in Virginia, in the period 1971 to 2000.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from the First Order station in Norfolk, Virginia.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Langley Air Force Base in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 42.0 degrees F and the average daily minimum temperature is 34.0 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -3 degrees. In summer, the average temperature is 77.3 degrees and the average daily maximum temperature is 84.8 degrees. The highest recorded temperature, which occurred on August 1, 1980, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 47.44 inches. Of this, 31.64 inches, or 67 percent, usually falls in April through November. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 6.51 inches on September 21, 1972. Thunderstorms occur on about 37 days each year, and most occur in July.

The average seasonal snowfall is about 6.1 inches. The greatest snow depth at any one time during the period of record was 13 inches on February 19, 1989. The heaviest 1-day snowfall on record was 12.2 inches on February 18, 1989. On the average, 4 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 57 percent. Humidity is higher at night, and the average at dawn is about 78 percent. The sun shines 64 percent of the time possible in summer and 54 percent in winter. The prevailing wind is from the west-southwest. Average windspeed is highest, 11.3 miles per hour, in March and April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information,

production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown

on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Suffolk fine sandy loam, 2 to 6 percent slopes, is a phase of the Suffolk series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Nevarc-Uchee complex, 6 to 15 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Udorthents-Dumps complex is an example.

Table 4 lists the map units in this survey area. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

1—Altavista-Urban land complex, 0 to 3 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad rises
Size and shape of areas: Irregular; 5 to 15 acres

Map Unit Composition

Altavista and similar soils: Typically 65 percent, ranging from about 50 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Altavista
Surface layer:
0 to 11 inches—dark grayish brown fine sandy loam

Subsoil:
11 to 16 inches—light yellowish brown loam
16 to 28 inches—light olive brown loam
28 to 37 inches—light olive brown clay loam; gray iron depletions
37 to 49 inches—yellowish brown and strong brown loam; gray iron depletions
49 to 62 inches—gray sandy clay loam; light olive brown and yellowish brown masses of oxidized iron

Substratum:
62 to 74 inches—gray stratified fine sandy loam to loamy fine sand to fine sand; yellowish brown masses of oxidized iron

Urban land

Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The somewhat poorly drained Augusta and Newflat soils; in slight depressions
- The poorly drained Chickahominy soils; in slight depressions

Similar:
- The well drained State soils; in the slightly higher areas

Soil Properties and Qualities

Available water capacity: Altavista—high (about 9.6 inches)
Slowest saturated hydraulic conductivity: Altavista—moderately high (about 0.57 in/hr)
Drainage class: Altavista—moderately well drained
Depth to seasonal water saturation: Altavista—about 18 to 30 inches
Water table kind: Altavista—apparent
Flooding hazard: Altavista—none
Ponding hazard: Altavista—none
Shrink-swell potential: Altavista—low
Runoff class: Altavista—low
Parent material: Altavista—loamy fluviomarine deposits

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low strength of the soil may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Altavista—2w; Urban land—8s
Virginia soil management group: Altavista—B
Hydric soil: Altavista—no

2—Augusta-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 15 acres

Map Unit Composition

Augusta and similar soils: Typically 60 percent, ranging from about 50 to 90 percent

Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Augusta
Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 13 inches—pale brown sandy loam; gray iron depletions

Subsoil:
13 to 27 inches—light olive brown sandy clay loam; light gray iron depletions
27 to 40 inches—light gray sandy loam; olive brown masses of oxidized iron

Substratum:
40 to 51 inches—grayish brown gravelly loamy sand; light gray iron depletions and reddish brown masses of oxidized iron
51 to 72 inches—light brownish gray stratified loamy sand to gravelly loamy sand; strong brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The somewhat poorly drained Dragston soils; in landscape positions similar to those of the Augusta soils
- The poorly drained Nimmo and Tomotley soils; in areas around small drainageways and in depressions
- Soils that have water on the surface for brief periods after heavy or prolonged rainfall

Similar:
- The moderately well drained Munden and Seabrook soils; on the slightly higher rises

Soil Properties and Qualities

Available water capacity: Augusta—moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Augusta—moderately high (about 0.57 in/hr)
Drainage class: Augusta—somewhat poorly drained
Depth to seasonal water saturation: Augusta—about 12 to 24 inches
Water table kind: Augusta—apparent
Flooding hazard: Augusta—none
Ponding hazard: Augusta—none
Shrink-swell potential: Augusta—low
Runoff class: Augusta—very high
Parent material: Augusta—loamy fluviomarine deposits

Use and Management Considerations

Pasture
Suitability: Moderately suited to pasture
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland
Suitability: Well suited to loblolly pine and southern red oak; moderately suited to sweetgum
- Wetness may limit the use of the soil by log trucks.
- These soils are well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low strength of the soil may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Augusta—4w; Urban land—8s
Virginia soil management group: Augusta—Z
Hydric soil: Augusta—No

3—Axis very fine sandy loam, 0 to 2 percent slopes, very frequently flooded

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Coastal Plain salt marshes
Position on the landform: Nearly level, low-lying salt marshes
Size and shape of areas: Irregular; 5 to 25 acres

Map Unit Composition

Axis and similar soils: Typically 90 percent, ranging from about 80 to 100 percent

Typical Profile

Surface layer:
0 to 14 inches—very dark grayish brown very fine sandy loam

Substratum:
14 to 35 inches—gray very fine sandy loam; dark yellowish brown and olive masses of oxidized iron
35 to 50 inches—dark gray fine sandy loam; olive masses of oxidized iron
50 to 70 inches—gray and light olive brown fine sandy loam

Minor Components

Dissimilar:
- The very poorly drained Johnston soils; along smaller streams that are not flooded by tidal waters
- Beaches

Similar:
- The very poorly drained Bohicket soils; in landscape positions similar to those of the Axis soil

Soil Properties and Qualities

Available water capacity: Moderate (about 7.2 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table kind: Apparent
Flooding hazard: Very frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 1.0 foot
Shrink-swell potential: Low
Runoff class: Negligible
Parent material: Loamy fluviomarine deposits

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Unsuited to woodland

Building sites
- Flooding and ponding limit the use of this soil for building site development.

Septic tank absorption fields
- Flooding and ponding limit the use of this soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

4—Beaches

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Coastal Plain beaches
Position on the landform: Beach
Size and shape of areas: Long and narrow; 5 to 25 acres

Map Unit Composition

Beaches and similar soils: Typically 95 percent, ranging from about 80 to 100 percent

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 8w

5—Bethera-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Nearly level, medium to broad flats and depressions
Size and shape of areas: Irregular; 5 to 30 acres

Map Unit Composition

Bethera and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 70 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping. Some small areas of this map unit are undeveloped.

Typical Profile

Bethera
Surface layer:
0 to 4 inches—dark gray silt loam
4 to 7 inches—dark gray silt loam; yellowish brown masses of oxidized iron

Subsurface layer:
7 to 12 inches—gray silt loam; strong brown masses of oxidized iron
12 to 40 inches—light gray clay loam; yellowish brown, strong brown, and yellowish red masses of oxidized iron
40 to 72 inches—light gray clay loam; dark yellowish brown and strong brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The moderately well drained Slagle soils; in the slightly higher areas

Similar:
- Soils that have water on the surface throughout early summer
- Soils that are at the base of escarpments and have less clay than the Bethera soil
- Soils that have a solum that is thinner than that of the Bethera soil

Soil Properties and Qualities

Available water capacity: Bethera—high (about 9.3 inches)
Slowest saturated hydraulic conductivity: Bethera—moderately low (about 0.06 in/hr)
Drainage class: Bethera—poorly drained
Depth to seasonal water saturation: Bethera—at the surface

Water table kind: Bethera—apparent
Flooding hazard: Bethera—none
Ponding hazard: Bethera—occasional
Depth of ponding: Bethera—0.0 to 1.0 foot
Shrink-swell potential: Bethera—moderate
Runoff class: Bethera—negligible
Parent material: Bethera—clayey marine sediments

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Moderately suited to sweetgum
- Ponding restricts the safe use of roads by log trucks.
- Wetness may limit the use of the soil by log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- Ponding limits the use of the soil for building site development.

Septic tank absorption fields
- Ponding limits the use of the soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Bethera—6w; Urban land—8s
Virginia soil management group: Bethera—OO
Hydric soil: Bethera—Yes

6—Bohicket muck, 0 to 1 percent slopes, very frequently flooded

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Tidal marshes
Position on the landform: Flood plains
Size and shape of areas: Long and winding or very broad; 3 to more than 100 acres

Map Unit Composition

Bohicket and similar soils: Typically 90 percent, ranging from about 70 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—gray silty clay loam; muck

Substratum:
8 to 29 inches—dark greenish gray silty clay loam
29 to 65 inches—dark greenish gray silty clay

Minor Components

Dissimilar:
- The very poorly drained Johnston soils; along small streams at the upper end of the flood plain and in areas that are not flooded by tidal waters

Similar:
- The very poorly drained Axis soils; in landscape positions similar to those of the Bohicket soil

Soil Properties and Qualities

Available water capacity: Moderate (about 7.8 inches)
Slowest saturated hydraulic conductivity: Low (about 0.00 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: At the surface
Water table kind: Apparent
Flooding hazard: Very frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 3.0 feet
Shrink-swell potential: High
Runoff class: Negligible
Parent material: Loamy and clayey alluvial sediments

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Unsuited to woodland

Building sites
- Flooding and ponding limit the use of the soil for building site development.

Septic tank absorption fields
- Flooding and ponding limit the use of the soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 8w

Virginia soil management group: PP
Hydric soil: Yes

7—Bojac-Urban land complex, 0 to 3 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad rises
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Bojac and similar soils: Typically 60 percent, ranging from about 50 to 90 percent
Urban land and similar areas: Typically 30 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Bojac
Surface layer:
0 to 10 inches—dark brown loamy fine sand

Subsoil:
10 to 35 inches—brown sandy loam

Substratum:
35 to 70 inches—strong brown loamy sand

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The somewhat poorly drained Dragston soils; in swales and around poorly defined drainageways
- The moderately well drained Seabrook soils; in the slightly lower areas

Similar:
- The moderately well drained Munden soils; in the slightly lower areas
- Soils that are somewhat excessively drained
- Soils that have a surface layer that is thicker than that of the Bojac soil

Soil Properties and Qualities

Available water capacity: Bojac—low (about 5.1 inches)
Slowest saturated hydraulic conductivity: Bojac—high (about 1.98 in/hr)
Drainage class: Bojac—well drained
Depth to seasonal water saturation: Bojac—about 48 to 79 inches
Water table kind: Bojac—apparent
Flooding hazard: Bojac—none
Ponding hazard: Bojac—none
Shrink-swell potential: Bojac—low
Runoff class: Bojac—very low
Parent material: Bojac—loamy and sandy fluviomarine deposits

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, and sweetgum
- These soils are well suited to haul roads and log landings.
- These soils are well suited to equipment operations.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Bojac—2s; Urban land—8s
Virginia soil management group: Bojac—DD
Hydric soil: Bojac—No

8—Chickahominy-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A) and Tidewater Area (MLRA 153B)
Landform: Stream terraces
Position on the landform: Nearly level, medium to broad flats, depressions, and drainageways
Size and shape of areas: Irregular; 5 to 50 acres

Map Unit Composition

Chickahominy and similar soils: Typically 80 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 15 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping. Some small areas of this map unit are undeveloped.

Typical Profile

Chickahominy
Surface layer:
0 to 2 inches—dark grayish brown silt loam

Subsurface layer:
2 to 5 inches—dark grayish brown loam; light olive brown masses of oxidized iron

Subsoil:
5 to 35 inches—grayish brown clay; yellowish brown masses of oxidized iron
35 to 64 inches—gray clay; yellowish brown masses of oxidized iron

Urban land

Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The moderately well drained Altavista and Peawick soils; in the slightly higher areas
- The somewhat poorly drained Augusta soils; in the slightly higher areas

Similar:
- The somewhat poorly drained Newflat soils; in the slightly higher areas
- Soils that have a gravelly substratum
- Soils that have water on the surface during winter and early spring and during periods of prolonged rainfall
- Soils that have a solum less than 40 inches thick

Soil Properties and Qualities

Available water capacity: Chickahominy—moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Chickahominy—low (about 0.00 in/hr)
Drainage class: Chickahominy—poorly drained
Depth to seasonal water saturation: Chickahominy—about 0 to 6 inches
Water table kind: Chickahominy—apparent
Flooding hazard: Chickahominy—none
Ponding hazard: Chickahominy—none
Shrink-swell potential: Chickahominy—high
Runoff class: Chickahominy—very high
Parent material: Chickahominy—clayey alluvial sediments

Use and Management Considerations

Pasture

Suitability: Poorly suited to pasture

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- Shrinking and swelling of the soil may crack foundations and basement walls.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Chickahominy—not prime farmland
Land capability class: Chickahominy—4w; Urban land—8s
Virginia soil management group: Chickahominy—LL
Hydric soil: Chickahominy—Yes

9A—Craven-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Gently sloping, narrow to broad flats and narrow to medium rises
Size and shape of areas: Irregular; 5 to 15 acres

Map Unit Composition

Craven and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Craven
Surface layer:
0 to 10 inches—dark grayish brown fine sandy loam

Subsoil:
10 to 22 inches—strong brown clay; red and yellowish brown masses of oxidized iron
22 to 36 inches—strong brown and yellowish brown clay; gray iron depletions and red and yellowish red masses of oxidized iron
36 to 45 inches—strong brown clay; gray iron depletions and reddish brown and yellowish red masses of oxidized iron
45 to 70 inches—light gray clay loam; reddish brown and strong brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The well drained Uchee soils; in the higher areas

Similar:
- The moderately well drained Slagle soils; in landscape positions similar to those of the Craven soil

Soil Properties and Qualities

Available water capacity: Craven—moderate (about 8.4 inches)
Slowest saturated hydraulic conductivity: Craven—moderately low (about 0.06 in/hr)
Drainage class: Craven—moderately well drained
Depth to seasonal water saturation: Craven—about 24 to 36 inches
Water table kind: Craven—apparent

Flooding hazard: Craven—none
Ponding hazard: Craven—none
Shrink-swell potential: Craven—moderate
Runoff class: Craven—low
Parent material: Craven—clayey marine sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine and southern red oak
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of the soil limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Craven—2w; Urban land—8s
Virginia soil management group: Craven—HH
Hydric soil: Craven—no

9B—Craven-Urban land complex, 2 to 6 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Gently sloping, narrow to broad flats and narrow to medium rises and side slopes
Size and shape of areas: Irregular; 5 to 15 acres

Map Unit Composition

Craven and similar soils: Typically 70 percent, ranging from about 60 to 90 percent

Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping. Some small areas of this map unit are undeveloped.

Typical Profile

Craven
Surface layer:
0 to 10 inches—dark grayish brown fine sandy loam

Subsoil:
10 to 22 inches—strong brown clay; red and yellowish brown masses of oxidized iron
22 to 36 inches—strong brown and yellowish brown clay; gray iron depletions and red and yellowish red masses of oxidized iron
36 to 45 inches—strong brown clay; gray iron depletions and reddish brown and yellowish red masses of oxidized iron
45 to 70 inches—light gray clay loam; reddish brown and strong brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The well drained Uchee soils; in the higher areas

Similar:
- The moderately well drained Slagle soils; in landscape positions similar to those of the Craven soil

Soil Properties and Qualities

Available water capacity: Craven—moderate (about 8.4 inches)
Slowest saturated hydraulic conductivity: Craven—moderately low (about 0.06 in/hr)
Drainage class: Craven—moderately well drained
Depth to seasonal water saturation: Craven—about 24 to 36 inches
Water table kind: Craven—apparent
Flooding hazard: Craven—none
Ponding hazard: Craven—none
Shrink-swell potential: Craven—moderate
Runoff class: Craven—low
Parent material: Craven—clayey marine sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine and southern red oak
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of these soils limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Craven—2e; Urban land—8s
Virginia soil management group: Craven—HH
Hydric soil: Craven—no

10—Dragston-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 10 acres

Map Unit Composition

Dragston and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Dragston
Surface layer:
0 to 4 inches—very dark grayish brown fine sandy loam

Subsurface layer:
4 to 8 inches—pale brown fine sandy loam; gray iron depletions

Subsoil:
8 to 12 inches—pale brown and yellowish brown fine sandy loam
12 to 25 inches—gray fine sandy loam; yellowish brown masses of oxidized iron
25 to 35 inches—yellowish brown and brownish yellow loamy fine sand; gray iron depletions

Substratum:
35 to 45 inches—yellowish brown sand; light brownish gray iron depletions
45 to 54 inches—dark yellowish brown sand; brown iron depletions
54 to 64 inches—yellowish brown sand; grayish brown iron depletions
64 to 72 inches—dark yellowish brown sandy loam
72 to 75 inches—greenish gray sandy loam

Urban land

Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The moderately well drained Seabrook soils; in small, slightly higher convex areas
- The poorly drained Tomotley soils; in slight depressions

Similar:
- The somewhat poorly drained Augusta soils; in landscape positions similar to those of the Dragston soil
- The poorly drained Nimmo soils; in slight depressions

Soil Properties and Qualities

Available water capacity: Dragston—low (about 5.4 inches)
Slowest saturated hydraulic conductivity: Dragston—high (about 1.98 in/hr)
Drainage class: Dragston—somewhat poorly drained
Depth to seasonal water saturation: Dragston—about 12 to 30 inches
Water table kind: Dragston—apparent
Flooding hazard: Dragston—none
Ponding hazard: Dragston—none
Shrink-swell potential: Dragston—low
Runoff class: Dragston—very low
Parent material: Dragston—loamy alluvial sediments

Use and Management Considerations

Pasture

Suitability: Well suited to pasture

Woodland

Suitability: Well suited to loblolly pine and southern red oak; moderately suited to yellow-poplar and sweetgum
- Wetness may limit the use of the soil by log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Dragston—4w; Urban land—8s
Virginia soil management group: Dragston—E
Hydric soil: Dragston—no

11—Duckston fine sand, 0 to 2 percent slopes, frequently flooded

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Broad flats
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 10 acres

Map Unit Composition

Duckston and similar soils: Typically 85 percent, ranging from about 75 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown fine sand

Substratum:
4 to 15 inches—grayish brown sand
15 to 60 inches—gray sand

Minor Components

Dissimilar:
- The very poorly drained Bohicket soils; in marshes
- Beaches

Similar:
- The poorly drained Nimmo soils; in slight depressions

Soil Properties and Qualities

Available water capacity: Very low (about 2.4 inches)
Slowest saturated hydraulic conductivity: Very high (about 19.98 in/hr)
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 6 inches
Water table kind: Apparent
Flooding hazard: Frequent
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Parent material: Sandy fluviomarine deposits

Use and Management Considerations

Pasture
- This soil is unsuited to pasture.

Woodland
Suitability: Moderately suited to sweetgum
- Flooding may result in damage to haul roads.
- Flooding restricts the safe use of roads by log trucks.
- Wetness may limit the use of the soil by log trucks.
- Coarse-textured layers may slough, which reduces the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse-textured layers in the soil increase the need for maintenance of haul roads and log landings.

Building sites
- Flooding limits the use of the soil for building site development.

Septic tank absorption fields
- Flooding limits the use of the soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: QQ
Hydric soil: Yes

12—Johnston silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Flood plains of the Coastal Plain
Position on the landform: Nearly level, low-lying flood plains along streams
Size and shape of areas: Irregular; 5 to 25 acres

Map Unit Composition

Johnston and similar soils: Typically 85 percent, ranging from about 75 to 95 percent

Typical Profile

Surface layer:
0 to 24 inches—black silt loam

Substratum:
24 to 30 inches—dark gray sandy loam
30 to 64 inches—dark grayish brown loamy sand

Minor Components

Dissimilar:
- The very poorly drained Axis and Bohicket soils; on the lower part of flood plains

- The poorly drained Nimmo and Tomotley soils; in landscape positions similar to those of the Johnston soil

Similar:
- Soils that have a clay subsoil
- Soils that are flooded for very long periods
- Soils that are somewhat poorly drained; near the base of side slopes
- Soils that have strata of weathered, calcareous shells

Soil Properties and Qualities

Available water capacity: Moderate (about 8.5 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: At the surface
Water table kind: Apparent
Flooding hazard: Frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 1.0 foot
Shrink-swell potential: Low
Runoff class: Negligible
Parent material: Loamy and sandy alluvium

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Moderately suited to sweetgum
- Flooding may result in damage to haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Wetness may limit the use of the soil by log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.

Building sites
- Flooding and ponding limit the use of the soil for building site development.

Septic tank absorption fields
- Flooding and ponding limit the use of the soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- Frost action may damage local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

13—Lawnes loam, 0 to 1 percent slopes, very frequently flooded

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Tidal marshes
Position on the landform: Nearly level freshwater and brackish water tidal marshes
Size and shape of areas: Irregular; 5 to 100 acres

Map Unit Composition

Lawnes and similar soils: Typically 80 percent, ranging from about 70 to 90 percent

Typical Profile

Surface layer:
0 to 13 inches—dark gray loam

Substratum:
13 to 26 inches—dark gray loam
26 to 55 inches—very dark gray loam
55 to 62 inches—very dark gray sand

Minor Components

Dissimilar:
- The well drained Bojac soils; on old point bars
- The moderately well drained Munden and Seabrook soils; on small knolls and rises
- The somewhat poorly drained Dragston soils; in the slightly higher areas

Similar:
- The somewhat poorly drained Augusta soils; in the slightly higher areas
- The poorly drained Nimmo soils; in landscape positions similar to those of the Lawnes soil
- Soils that are ponded after heavy rains in winter and spring and during prolonged wet periods
- Soils that have fossiliferous shells or cobbles within a depth of 50 inches
- Soils in the slightly higher areas that are less frequently flooded

Soil Properties and Qualities

Available water capacity: High (about 9.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: At the surface
Water table kind: Apparent
Flooding hazard: Very frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 3.0 feet
Shrink-swell potential: Low
Runoff class: Negligible
Parent material: Herbaceous organic materials over loamy alluvial sediments

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Unsuited to woodland

- Flooding may result in damage to haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Wetness may limit the use of the soil by log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.

Building sites
- Flooding and ponding limit the use of the soil for building site development.

Septic tank absorption fields
- Flooding and ponding limit the use of the soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

14—Levy silty clay, 0 to 2 percent slopes, very frequently flooded

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Flood plains of the Coastal Plain
Position on the landform: Nearly level freshwater and slightly brackish water tidal marshes
Size and shape of areas: Irregular; 5 to 100 acres

Map Unit Composition

Levy and similar soils: Typically 80 percent, ranging from about 70 to 90 percent

Typical Profile

Surface layer:
0 to 20 inches—dark olive gray mucky silty clay

Substratum:
20 to 40 inches—dark gray mucky silty clay
40 to 60 inches—very dark gray mucky clay
60 to 80 inches—black and gray stratified mucky sandy loam to sandy loam

Minor Components

Dissimilar:
- The well drained Bojac soils; on old point bars
- The moderately well drained Munden and Seabrook soils; on small knolls and rises
- The somewhat poorly drained Dragston soils; in the slightly higher areas

Similar:
- The somewhat poorly drained Augusta soils; in the slightly higher areas
- The poorly drained Nimmo soils; in landscape positions similar to those of the Levy soil
- Soils that are ponded after heavy rains in winter and spring and during prolonged wet periods
- Soils that have fossiliferous shells or cobbles within a depth of 50 inches
- Soils in the slightly higher areas that are less frequently flooded

Soil Properties and Qualities

Available water capacity: High (about 11.4 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.03 in/hr)
Drainage class: Very poorly drained
Depth to seasonal water saturation: At the surface
Water table kind: Apparent
Flooding hazard: Very frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 3.0 feet
Shrink-swell potential: High
Runoff class: Medium
Parent material: Clayey estuarine sediments

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Moderately suited to cypress
- Flooding may result in damage to haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Wetness may limit the use of the soil by log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- Flooding and ponding limit the use of the soil for building site development.

Septic tank absorption fields
- Flooding and ponding limit the use of the soil for septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

15—Munden-Urban land complex, 0 to 3 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad rises
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Munden and similar soils: Typically 70 percent, ranging from about 50 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Munden
Surface layer:
0 to 6 inches—very dark grayish brown loamy fine sand

Subsurface layer:
6 to 14 inches—grayish brown fine sandy loam

Subsoil:
14 to 27 inches—light yellowish brown fine sandy loam
27 to 38 inches—light olive brown fine sandy loam; light gray iron depletions

Substratum:
38 to 50 inches—light yellowish brown loamy sand
50 to 61 inches—light gray sand
61 to 70 inches—light gray sand; yellowish brown and light yellowish brown masses of oxidized iron
70 to 74 inches—light gray loamy sand; light yellowish brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The somewhat poorly drained Dragston soils; in the lower areas and in slight depressions

Similar:
- The well drained Bojac soils; in the slightly higher areas

Soil Properties and Qualities

Available water capacity: Munden—low (about 5.9 inches)
Slowest saturated hydraulic conductivity: Munden—moderately high (about 0.57 in/hr)

Drainage class: Munden—moderately well drained
Depth to seasonal water saturation: Munden—about 18 to 30 inches
Water table kind: Munden—apparent
Flooding hazard: Munden—none
Ponding hazard: Munden—none
Shrink-swell potential: Munden—low
Runoff class: Munden—very low
Parent material: Munden—loamy and sandy alluvial sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak and sweetgum
- Coarse-textured layers may slough, which reduces the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse-textured layers in the soil increase the need for maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Munden—2w; Urban land—8s
Virginia soil management group: Munden—F
Hydric soil: Munden—no

16C—Nevarc-Uchee complex, 6 to 15 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Sloping narrow rises and side slopes
Size and shape of areas: Irregular; 5 to 10 acres

Map Unit Composition

Nevarc and similar soils: Typically 45 percent, ranging from about 40 to 50 percent

Uchee and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Nevarc
Surface layer:
0 to 5 inches—dark grayish brown sandy loam

Subsurface layer:
5 to 11 inches—pale brown loam

Subsoil:
11 to 26 inches—yellowish brown clay
26 to 42 inches—yellowish brown clay; yellowish red and strong brown masses of oxidized iron and grayish brown iron depletions
42 to 54 inches—yellowish brown sandy clay loam; yellowish red and strong brown masses of oxidized iron and grayish brown iron depletions

Substratum:
54 to 72 inches—yellowish brown fine sandy loam

Uchee
Surface layer:
0 to 4 inches—dark gray loamy sand

Subsurface layer:
4 to 26 inches—light yellowish brown loamy sand

Subsoil:
26 to 30 inches—light yellowish brown and brownish yellow sandy loam

Subsoil:
30 to 50 inches—brownish yellow sandy clay loam

Substratum:
50 to 62 inches—yellowish brown sandy clay loam; yellowish red and strong brown masses of oxidized iron and gray iron depletions

Minor Components

Dissimilar:
- Areas of ferricrete outcrops
- Soils that are severely eroded; on the points of rises and the upper part of side slopes
- Areas that have seeps; at the bases of escarpments

Similar:
- The moderately well drained Slagle soils; in landscape positions similar to those of the Nevarc and Uchee soils

Soil Properties and Qualities

Available water capacity: Moderate (Nevarc—about 7.6 inches; Uchee—about 6.5 inches)
Slowest saturated hydraulic conductivity: Nevarc—moderately low (about 0.06 in/hr); Uchee—moderately high (about 0.20 in/hr)
Drainage class: Nevarc—moderately well drained; Uchee—well drained
Depth to seasonal water saturation: Nevarc—about 18 to 36 inches
Water table kind: Perched

Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Parent material: Nevarc—clayey marine sediments; Uchee—loamy and sandy marine sediments

Use and Management Considerations

Pasture
Suitability: Moderately suited to pasture
- Slope increases surface runoff, nutrient loss, and the hazard of erosion.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse-textured layers may slough, which reduces the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of these soils limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.
- Slope makes designing local roads and streets difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Nevarc—4e; Uchee—4s

Virginia soil management group: Nevarc—HH; Uchee—DD
Hydric soil: No

16D—Nevarc-Uchee complex, 15 to 50 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Moderately steep to very steep, narrow to medium side slopes
Size and shape of areas: Irregular and elongated; 5 to 100 acres

Map Unit Composition

Nevarc and similar soils: Typically 45 percent, ranging from about 40 to 50 percent
Uchee and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Nevarc
Surface layer:
0 to 5 inches—dark grayish brown sandy loam

Subsurface layer:
5 to 11 inches—pale brown loam

Subsoil:
11 to 26 inches—yellowish brown clay
26 to 42 inches—yellowish brown clay; yellowish red and strong brown masses of oxidized iron and grayish brown iron depletions
42 to 54 inches—yellowish brown sandy clay loam; yellowish red and strong brown masses of oxidized iron and grayish brown iron depletions

Substratum:
54 to 72 inches—yellowish brown fine sandy loam

Uchee
Surface layer:
0 to 4 inches—dark gray loamy sand

Subsurface layer:
4 to 26 inches—light yellowish brown loamy sand

Subsoil:
26 to 30 inches—light yellowish brown and brownish yellow sandy loam
30 to 50 inches—brownish yellow sandy clay loam

Substratum:
50 to 62 inches—yellowish brown sandy clay loam; yellowish red and strong brown masses of oxidized iron and gray iron depletions

Minor Components

Dissimilar:
- Areas of ferricrete outcrops
- Soils that are severely eroded; on the points of rises and the upper part of side slopes

- Areas that have seeps; at the bases of escarpments

Similar:
- The moderately well drained Slagle soils; in landscape positions similar to those of the Nevarc and Uchee soils

Soil Properties and Qualities

Available water capacity: Moderate (Nevarc—about 7.6 inches; Uchee—about 6.5 inches)
Slowest saturated hydraulic conductivity: Nevarc—moderately low (about 0.06 in/hr); Uchee—moderately high (about 0.20 in/hr)
Drainage class: Nevarc—moderately well drained; Uchee—well drained
Depth to seasonal water saturation: Nevarc—about 18 to 36 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Parent material: Nevarc—clayey marine sediments; Uchee—loamy and sandy marine sediments

Use and Management Considerations

Pasture
Suitability: Unsuited to pasture

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- The slope poses safety hazards and creates a potential for erosion during construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting and mechanical planting equipment.
- The slope restricts the use of equipment for preparing this site for planting and seeding.
- The slope makes the use of mechanical planting equipment impractical.
- Coarse-textured layers may slough, which reduces the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of these soils limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.
- Slope makes designing local roads and streets difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Nevarc—7e; Uchee—6e
Virginia soil management group: Nevarc—HH; Uchee—DD
Hydric soil: No

17—Newflat-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A) and Tidewater Area (MLRA 153B)
Landform: Stream terraces
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 50 acres

Map Unit Composition

Newflat and similar soils: Typically 75 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 15 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Newflat
Surface layer:
0 to 2 inches—gray silt loam

Subsurface layer:
2 to 6 inches—pale brown silt loam; gray iron depletions

Subsoil:
6 to 14 inches—brown silty clay; grayish brown iron depletions
14 to 55 inches—gray silty clay; strong brown masses of oxidized iron
55 to 64 inches—gray clay loam; strong brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The moderately well drained Altavista soils; in the slightly higher areas

Similar:
- The moderately well drained Peawick soils; in the slightly higher areas
- The poorly drained Chickahominy soils; in slight depressions and near drainageways

Soil Properties and Qualities

Available water capacity: Newflat—moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Newflat—low (about 0.00 in/hr)
Drainage class: Newflat—somewhat poorly drained
Depth to seasonal water saturation: Newflat—about 6 to 18 inches
Water table kind: Newflat—apparent
Flooding hazard: Newflat—none
Ponding hazard: Newflat—none
Shrink-swell potential: Newflat—high
Runoff class: Newflat—very high
Parent material: Newflat—clayey alluvial sediments

Use and Management Considerations

Pasture
Suitability: Moderately suited to pasture

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak and sweetgum
- Wetness may limit the use of the soil by log trucks.
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- Shrinking and swelling of the soil may crack foundations and basement walls.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of the soil limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Newflat—4w; Urban land—8s
Virginia soil management group: Newflat—LL
Hydric soil: Newflat—no

18—Nimmo-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Nimmo and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Nimmo
Surface layer:
0 to 4 inches—black fine sandy loam

Subsurface layer:
4 to 10 inches—dark gray sandy loam; yellowish brown masses of oxidized iron
10 to 14 inches—dark gray sandy loam

Subsoil:
14 to 32 inches—gray fine sandy loam

Substratum:
32 to 40 inches—gray sand; yellowish brown masses of oxidized iron
40 to 64 inches—gray coarse sand

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The moderately well drained Munden and Seabrook soils; in the slightly higher areas

Similar:
- The poorly drained Tomotley soils; in landscape positions similar to those of the Nimmo soil
- Soils that have water on the surface in winter and early spring and during periods of prolonged rainfall

Soil Properties and Qualities

Available water capacity: Nimmo—low (about 5.7 inches)
Slowest saturated hydraulic conductivity: Nimmo—moderately high (about 0.57 in/hr)

Drainage class: Nimmo—poorly drained
Depth to seasonal water saturation: Nimmo—about 0 to 12 inches
Water table kind: Nimmo—apparent
Flooding hazard: Nimmo—none
Ponding hazard: Nimmo—none
Shrink-swell potential: Nimmo—low
Runoff class: Nimmo—very high
Parent material: Nimmo—loamy and sandy alluvial sediments

Use and Management Considerations

Pasture
Suitability: Poorly suited to pasture

Woodland
Suitability: Well suited to loblolly pine and moderately suited to sweetgum
- Wetness may limit the use of the soil by log trucks.
- These soils are well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Nimmo—4w; Urban land—8s
Virginia soil management group: Nimmo—E
Hydric soil: Nimmo—yes

19—Peawick-Urban land complex, 0 to 3 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Stream terraces
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Peawick and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Peawick
Surface layer:
0 to 2 inches—very dark grayish brown silt loam

Subsurface layer:
2 to 5 inches—light yellowish brown silt loam

Subsoil:
5 to 24 inches—yellowish brown silty clay loam; strong brown masses of oxidized iron
24 to 36 inches—yellowish brown silty clay; strong brown masses of oxidized iron and gray iron depletions
36 to 64 inches—gray clay; yellowish brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The poorly drained Chickahominy soils; in the lower areas, in slight depressions, and near drainageways

Similar:
- The somewhat poorly drained Newflat soils; in the lower areas, in slight depressions, and near drainageways

Soil Properties and Qualities

Available water capacity: Peawick—moderate (about 8.4 inches)
Slowest saturated hydraulic conductivity: Peawick—low (about 0.00 in/hr)
Drainage class: Peawick—moderately well drained
Depth to seasonal water saturation: Peawick—about 18 to 36 inches
Water table kind: Peawick—perched
Flooding hazard: Peawick—none
Ponding hazard: Peawick—none
Shrink-swell potential: Peawick—high
Runoff class: Peawick—medium
Parent material: Peawick—clayey alluvial sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- Shrinking and swelling of the soil may crack foundations and basement walls.

- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of the soil limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Peawick—2w; Urban land—8s
Virginia soil management group: Peawick—HH
Hydric soil: Peawick—no

20—Seabrook-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad rises
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Seabrook and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Seabrook
Surface layer:
0 to 9 inches—dark grayish brown loamy fine sand

Substratum:
9 to 20 inches—light yellowish brown loamy sand
20 to 26 inches—yellowish brown loamy sand
26 to 40 inches—yellowish brown loamy sand; strong brown masses of oxidized iron and light gray iron depletions
40 to 53 inches—yellowish brown loamy sand; light gray iron depletions
53 to 60 inches—light gray loamy sand; yellowish brown masses of oxidized iron
60 to 80 inches—strong brown gravelly sand; reddish brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The poorly drained Tomotley soils; in landscape positions similar to those of the Seabrook soil
- Soils that have water on the surface in winter and early spring and during periods of prolonged rainfall

Similar:
- The moderately well drained Munden soils; in the slightly higher areas

Soil Properties and Qualities

Available water capacity: Seabrook—low (about 3.8 inches)
Slowest saturated hydraulic conductivity: Seabrook—high (about 5.95 in/hr)
Drainage class: Seabrook—moderately well drained
Depth to seasonal water saturation: Seabrook—about 24 to 42 inches
Water table kind: Seabrook—apparent
Flooding hazard: Seabrook—none
Ponding hazard: Seabrook—none
Shrink-swell potential: Seabrook—low
Runoff class: Seabrook—very low
Parent material: Seabrook—sandy fluviomarine sediments

Use and Management Considerations

Pasture
Suitability: Moderately suited to pasture

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- Coarse-textured layers may slough, which reduces the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse-textured layers in the soil increase the need for maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Seabrook—3s; Urban land—8s
Virginia soil management group: Seabrook—EE
Hydric soil: Seabrook—no

21A—Slagle-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Nearly level to gently sloping, medium to broad rises
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Slagle and similar soils: Typically 70 percent, ranging from about 40 to 95 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping. Some small areas of this map unit are undeveloped.

Typical Profile

Slagle
Surface layer:
0 to 10 inches—dark grayish brown fine sandy loam

Subsoil:
10 to 25 inches—yellowish brown sandy clay loam; strong brown and pale brown masses of oxidized iron
25 to 44 inches—yellowish brown sandy clay loam; strong brown masses of oxidized iron and grayish brown iron depletions
44 to 63 inches—yellowish brown sandy clay loam; yellowish red masses of oxidized iron and light brownish gray and gray iron depletions

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The well drained Uchee soils; in the slightly higher areas
- The poorly drained Bethera soils; in slight depressions and around drainageways

Similar:
- The moderately well drained Peawick soils; in landscape positions similar to those of the Slagle soil
- Soils that have water on the surface for brief periods after heavy or prolonged rainfall in winter and spring
- Soils that have a surface layer that is thicker than that of the Slagle soil

Soil Properties and Qualities

Available water capacity: Slagle—moderate (about 8.7 inches)
Slowest saturated hydraulic conductivity: Slagle—moderately low (about 0.06 in/hr)
Drainage class: Slagle—moderately well drained
Depth to seasonal water saturation: Slagle—about 18 to 36 inches
Water table kind: Slagle—apparent
Flooding hazard: Slagle—none
Ponding hazard: Slagle—none
Shrink-swell potential: Slagle—moderate

Runoff class: Slagle—low
Parent material: Slagle—loamy marine sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of the soil limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Slagle—2e; Urban land—8s
Virginia soil management group: Slagle—K
Hydric soil: Slagle—no

21B—Slagle-Urban land complex, 2 to 6 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Nearly level to gently sloping, medium to broad rises
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Slagle and similar soils: Typically 70 percent, ranging from about 40 to 95 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping. Some small areas of this map unit are undeveloped.

Typical Profile

Slagle
Surface layer:
0 to 10 inches—dark grayish brown fine sandy loam

Subsoil:
10 to 25 inches—yellowish brown sandy clay loam; strong brown and pale brown masses of oxidized iron
25 to 44 inches—yellowish brown sandy clay loam; grayish brown iron depletions and strong brown masses of oxidized iron
44 to 63 inches—yellowish brown sandy clay loam; yellowish red masses of oxidized iron and light brownish gray and gray iron depletions

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The well drained Uchee soils; in the slightly higher areas
- The poorly drained Bethera soils; in slight depressions and around drainageways

Similar:
- The moderately well drained Peawick soils; in landscape positions similar to those of the Slagle soil
- Soils that have water on the surface for brief periods after heavy or prolonged rainfall in winter and spring
- Soils that have a surface layer that is thicker than that of the Slagle soil

Soil Properties and Qualities

Available water capacity: Slagle—moderate (about 8.7 inches)
Slowest saturated hydraulic conductivity: Slagle—moderately low (about 0.06 in/hr)
Drainage class: Slagle—moderately well drained
Depth to seasonal water saturation: Slagle—about 18 to 36 inches
Water table kind: Slagle—apparent
Flooding hazard: Slagle—none
Ponding hazard: Slagle—none
Shrink-swell potential: Slagle—moderate
Runoff class: Slagle—low
Parent material: Slagle—loamy marine sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum
- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability of the soil limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Shrinking and swelling restrict the use of the soil as base material for local roads and streets.
- The low strength of the soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Slagle—2e; Urban land—8s
Virginia soil management group: Slagle—K
Hydric soil: Slagle—no

22—State-Urban land complex, 0 to 3 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad rises
Size and shape of areas: Irregular; 5 to 120 acres

Map Unit Composition

State and similar soils: Typically 70 percent, ranging from about 65 to 90 percent
Urban land and similar areas: Typically 20 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

State
Surface layer:
0 to 10 inches—brown fine sandy loam

Subsoil:
10 to 14 inches—yellowish brown sandy clay loam
14 to 40 inches—strong brown sandy clay loam
40 to 50 inches—strong brown sandy clay loam; reddish yellow masses of oxidized iron
50 to 56 inches—brownish yellow and yellowish brown sandy clay loam

Substratum:
56 to 64 inches—yellowish brown and brownish yellow sandy loam
64 to 84 inches—yellow sand

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The somewhat poorly drained Augusta soils; in the slightly lower areas and in slight depressions

Similar:
- The moderately well drained Altavista soils; in landscape positions similar to those of the State soil

Soil Properties and Qualities

Available water capacity: State—high (about 9.3 inches)
Slowest saturated hydraulic conductivity: State—moderately high (about 0.57 in/hr)
Drainage class: State—well drained
Depth to seasonal water saturation: State—about 48 to 79 inches
Water table kind: State—apparent
Flooding hazard: State—rare
Ponding hazard: State—none
Shrink-swell potential: State—low
Runoff class: State—low
Parent material: State—loamy and sandy alluvium

Use and Management Considerations

Pasture
Suitability: Well suited to pasture

Woodland
Suitability: Well suited to loblolly pine, southern red oak, and yellow-poplar
- These soils are well suited to haul roads and log landings.
- These soils are well suited to equipment operations.

Building sites
- Flooding limits the use of the soil for building site development.

Septic tank absorption fields
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- The soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: State—1; Urban land—8s
Virginia soil management group: State—B
Hydric soil: State—No

23—Suffolk fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Marine terraces
Position on the landform: Uplands
Size and shape of areas: Smooth elongated or irregularly oval; 4 to 30 acres

Map Unit Composition

Suffolk and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Typical Profile

Surface layer:
0 to 10 inches—brown fine sandy loam

Subsoil:
10 to 14 inches—yellowish brown sandy loam
14 to 38 inches—strong brown sandy loam
38 to 43 inches—strong brown loamy sand

Substratum:
43 to 65 inches—yellow sand; reddish yellow masses of oxidized iron

Minor Components

Dissimilar:
- The somewhat poorly drained Augusta soils; in the slightly lower areas and in slight depressions

Similar:
- The moderately well drained Altavista soils; in landscape positions similar to those of the Suffolk soil

Soil Properties and Qualities

Available water capacity: Low (about 5.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Parent material: Loamy marine sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture
- Slope increases surface runoff, nutrient loss, and the hazard of erosion.

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- The soil is well suited to haul roads and log landings.
- The soil is well suited to equipment operations.

Building sites
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- The soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Prime farmland in all areas
Land capability class: 2e
Virginia soil management group: T
Hydric soil: No

24—Tomotley-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Marine terraces
Position on the landform: Nearly level, medium to broad flats
Size and shape of areas: Irregular; 5 to 30 acres

Map Unit Composition

Tomotley and similar soils: Typically 70 percent, ranging from about 60 to 90 percent
Urban land and similar areas: Typically 15 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping. Some small areas of this map unit are undeveloped.

Typical Profile

Tomotley
Surface layer:
0 to 4 inches—dark gray fine sandy loam

Subsurface layer:
4 to 8 inches—dark grayish brown fine sandy loam

Subsoil:
8 to 15 inches—gray fine sandy loam; yellowish brown masses of oxidized iron
15 to 38 inches—dark gray sandy clay loam; yellowish brown masses of oxidized iron
38 to 58 inches—gray sandy clay loam; light olive brown masses of oxidized iron
58 to 65 inches—gray fine sandy loam; light olive brown masses of oxidized iron

Substratum:
65 to 75 inches—gray loamy sand

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The well drained Bojac soils; on old point bars
- The moderately well drained Munden and Seabrook soils; on small knolls and rises
- The somewhat poorly drained Dragston soils; in the slightly higher areas

Similar:
- The somewhat poorly drained Augusta soils; in the slightly higher areas
- The poorly drained Nimmo soils; in landscape positions similar to those of the Tomotley soil
- Soils that are ponded after heavy rains in winter and spring and during prolonged wet periods

- Soils that have fossiliferous shells or cobbles within a depth of 50 inches

Soil Properties and Qualities

Available water capacity: Tomotley—moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Tomotley—moderately high (about 0.20 in/hr)
Drainage class: Tomotley—poorly drained
Depth to seasonal water saturation: Tomotley—about 0 to 12 inches
Water table kind: Tomotley—apparent
Flooding hazard: Tomotley—none
Ponding hazard: Tomotley—none
Shrink-swell potential: Tomotley—low
Runoff class: Tomotley—very high
Parent material: Tomotley—loamy alluvial sediments

Use and Management Considerations

Pasture
Suitability: Moderately suited to pasture

Woodland
Suitability: Well suited to sweetgum
- Wetness may limit the use of the soil by log trucks.
- The soil is well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low strength of the soil may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Tomotley—4w; Urban land—8s
Virginia soil management group: Tomotley—OO
Hydric soil: Tomotley—Yes

25—Uchee loamy fine sand, 2 to 6 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Uplands
Position on the landform: Gently sloping, medium to broad rises
Size and shape of areas: Irregular; 5 to 40 acres

Map Unit Composition

Uchee and similar soils: Typically 80 percent, ranging from about 70 to 90 percent

Typical Profile

Surface layer:
0 to 4 inches—dark gray loamy sand

Subsurface layer:
4 to 26 inches—light yellowish brown loamy sand

Subsoil:
26 to 30 inches—light yellowish brown and brownish yellow sandy loam
30 to 50 inches—brownish yellow sandy clay loam

Substratum:
50 to 62 inches—yellowish brown sandy clay loam; yellowish red and strong brown masses of oxidized iron and gray iron depletions

Minor Components

Dissimilar:
- The moderately well drained Slagle soils; in slight depressions and in areas adjacent to drainageways

Soil Properties and Qualities

Available water capacity: Moderate (about 6.5 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Drainage class: Well drained
Depth to seasonal water saturation: About 42 to 60 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Parent material: Loamy and sandy marine sediments

Use and Management Considerations

Pasture
Suitability: Well suited to pasture
- Slope increases surface runoff, nutrient loss, and the hazard of erosion.

Woodland
Suitability: Well suited to southern red oak; moderately suited to loblolly pine
- Coarse-textured layers may slough, which reduces the efficiency of mechanical planting equipment.
- The coarseness of the soil may reduce the traction of wheeled harvest equipment and log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Seepage limits the proper treatment of the effluent from conventional septic systems and may pollute the water table.

Local roads and streets
- The soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2s

Virginia soil management group: DD
Hydric soil: No

26—Udorthents-Dumps complex

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Fill in the Coastal Plain

Map Unit Composition

Udorthents and similar soils: Typically 50 percent, ranging from about 20 to 95 percent
Dumps and similar soils: Typically 25 percent, ranging from about 15 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Udorthents

Udorthents are deep or very deep, well drained or somewhat excessively drained, nearly level to very steep, loamy and clayey soils. These soils are mainly on summits and side slopes in the uplands. They mostly consist of overburden and waste rock that have been stockpiled during quarrying or mining and soil material that has been cut and filled during road or building construction. These soils occur in or near quarries and mines, along highways, and near large buildings. Slopes range from 0 to 45 percent. Because of the variability of these soils, a typical pedon is not given.

Dumps

Dumps consist of areas that have been cut and filled for the disposal of refuse and waste from residential, commercial, and industrial sites. The soil materials comprising Dumps, are variable. A detailed onsite investigation is needed to determine the suitability and limitations of these areas for any proposed use.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

27—Urban land

Setting

Major land resource area: Tidewater Area (MLRA 153B)
Landform: Upland of the Coastal Plain

Map Unit Composition

Urban land and similar areas: Typically 85 percent, ranging from about 10 to 95 percent

Typical Profile

This map unit consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

28—Yemassee-Urban land complex, 0 to 2 percent slopes

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Marine terraces and depressions
Position on the landform: Head slopes and depressions
Size and shape of areas: Irregular; 5 to 468 acres

Map Unit Composition

Yemassee and similar soils: Typically 70 percent, ranging from about 65 to 95 percent
Urban land and similar areas: Typically 15 percent, ranging from about 10 to 95 percent

Note: These two components occur as areas so closely intermingled that they cannot be separated at the scale selected for mapping.

Typical Profile

Yemassee
Surface layer:
0 to 4 inches—grayish brown fine sandy loam

Subsurface layer:
4 to 15 inches—pale brown fine sandy loam; strong brown and yellowish brown masses of oxidized iron

Subsoil:
15 to 40 inches—light brownish gray sandy clay loam; strong brown and yellowish brown masses of oxidized iron
40 to 60 inches—gray sandy loam; yellowish brown, red, and strong brown masses of oxidized iron

Urban land
Urban land consists of areas such as roads, commercial buildings, industries, schools, churches, parking lots, streets, and shopping centers.

Minor Components

Dissimilar:
- The well drained Bojac soils; on old point bars
- The moderately well drained Munden and Seabrook soils; on small knolls and rises
- The somewhat poorly drained Dragston soils; in the slightly higher areas

Similar:
- The somewhat poorly drained Augusta soils; in the slightly higher areas
- The poorly drained Nimmo soils; in landscape positions similar to those of the Yemassee soil
- Soils that are ponded after heavy rains in winter and spring and during prolonged wet periods
- Soils that have fossiliferous shells or cobbles within a depth of 50 inches

Soil Properties and Qualities

Available water capacity: Yemassee—moderate (about 8.5 inches)
Slowest saturated hydraulic conductivity: Yemassee—moderately high (about 0.57 in/hr)
Drainage class: Yemassee—somewhat poorly drained
Depth to seasonal water saturation: Yemassee—about 12 to 18 inches
Water table kind: Yemassee—apparent

Flooding hazard: Yemassee—none
Ponding hazard: Yemassee—none
Shrink-swell potential: Yemassee—low
Runoff class: Yemassee—very high
Parent material: Yemassee—loamy marine deposits

Use and Management Considerations

Pasture
Suitability: Poorly suited to pasture

Woodland
Suitability: Moderately suited to sweetgum
- Wetness may limit the use of the soil by log trucks.
- The soil is well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Frost action may damage local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Yemassee—4w; Urban land—8s
Virginia soil management group: Yemassee—OO
Hydric soil: Yemassee—No

DAM—Dam

Setting

Major land resource area: Atlantic Coast Flatwoods (MLRA 153A)
Landform: Unspecified

Typical Profile

This map unit is made up of the Skiffes Creek Reservoir and Indigo Lake Dams. The Skiffes Creek Reservoir Dam is a concrete barrier that obstructs the flow of water from the Blows Mill Run and Skiffes Creek. The Indigo Lake Dam is an earthen barrier that obstructs the flow of water from a small watershed.

W—Water

Typical Profile

This map unit is in the Coastal Plain physiographic province. It includes ponds, lakes, rivers, and reservoirs.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Pasture

General management needed for pasture is suggested in this section. The estimated yields of the main pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is explained.

Planners of management systems for individual fields should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields that can be expected under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall and other climatic factors. The land capability classification and the Virginia Soil Management Group of map units in the survey area also are shown in the tables.

The yields are based on the Virginia Agronomic Land Use Evaluation System, or VALUES (Virginia Polytechnic Institute and State University, 1994). Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of pasture plants depends on the kind of soil and the plant. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; control of weeds, plant diseases, and harmful insects; and favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements.

Realistic yield goals can be maintained over a long-term basis through proper nutrient management and other soil amendments, such as lime. Applications of nitrogen and phosphorus from organic and inorganic forms should be administered according to approved nutrient management practices and regulations.

Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the yields table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils

are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at two levels—capability class and subclass (USDA, 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the soils in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

Virginia Soil Management Groups

The Virginia Agronomic Land Use Evaluation System (VALUES) is a system to rank soils for management and productivity (Virginia Polytechnic Institute and State University, 1994). VALUES places each soil series in Virginia into one of 43 management groups. The management groups, A through QQ, include the following soil characteristics: regional occurrence; parent material; landscape position or influence; solum thickness; dominant profile features, such as texture; available water capacity for plants; and internal soil drainage. Economically and environmentally

feasible yields were assigned to each management group based on yields of field trial crop data and research. The following paragraphs describe the soil management groups in the Tidewater Cities Area.

Group B. The soils of this group formed in alluvium and are on nearly level or gently sloping flood plains or stream terraces in the Coastal Plain region. These soils are very deep, have a loamy texture throughout, have a high available water capacity, and are well drained or moderately well drained.

Group E. The soils of this group formed in sandy coastal plain sediments on low lying terraces, in depressions, or on flats where surface drainage is restricted. These soils are deep and have a coarse-loamy texture throughout; generally have a high water table, even during some parts of the growing season; have a high available water capacity; and are poorly drained.

Group F. The soils of this group formed in coarse-textured coastal plain sediments and are in low-lying landscape positions underlain by stratified loamy sediments. These soils are very deep, have a coarse-loamy texture throughout, have a moderate or high available water capacity, and are somewhat poorly drained.

Group K. The soils of this group formed in mixed marine and fluvial sediments in the Coastal Plain and are on landscapes that range from stream terraces to broad, nearly level interfluves on uplands. These soils are very deep, have a loamy surface layer and a clay loam to clayey subsurface layer, have a moderate available water capacity, and are somewhat poorly drained.

Group T. The soils of this group formed in loamy sediments of the Coastal Plain and are located on uplands and stream terraces in the Coastal Plain. These soils are deep, have fine loamy subsurface textures and are usually underlain by coarser sediments, have a moderate available water capacity, and are well drained.

Group Z. The soils of this group formed in alluvial or colluvial sediments and are on low terraces. These soils are very deep, have a clayey subsurface layer, have a moderate available water capacity, and are well drained or moderately well drained.

Group BB. The soils of this group formed in a variety of parent materials, such as colluvium, alluvium, and limestone residuum, and are on uplands, terraces, and footslopes in the western mountains, Piedmont, and Coastal Plain. These soils have fragipans that underlie silty to loamy subsurface horizons that sometimes have coarse fragments, have a limited rooting zone as a result of the fragipan, have a low or moderately low available water capacity, and generally are somewhat poorly drained.

Group DD. The soils of this group formed in loamy coastal plain sediments and local alluvium and are on gently sloping uplands and stream terraces. These soils are very deep, have a coarse-loamy subsurface layer, have an arenic or a very thick sandy surface in some soils, have a low or moderate available water capacity, and are excessively drained.

Group EE. The soils of this group formed in loamy coastal plain sediments and are in low-lying landscape positions. These soils are very deep, have a sandy to coarse-loamy subsurface layer, have water tables that usually are high during some part of the year, have a low available water capacity, and are poorly drained or very poorly drained.

Group HH. The soils of this group formed in loamy alluvial sediments and are on flood plains. These soils are very deep, have a fine-loamy or clayey subsurface layer, have a moderate available water capacity, and are moderately well drained or somewhat poorly drained.

Group LL. The soils of this group formed in clayey coastal plain sediments on low-lying landscapes. These soils are very deep, have clayey subsurface layers throughout, have a moderate available water capacity, and are somewhat poorly drained or poorly drained.

Group OO. The soils of this group formed in loamy and silty coastal plain sediments on terraces and broad, nearly level uplands. These soils are very deep,

have loamy to silty layers throughout, have a high available water capacity, and are poorly drained.

Group PP. The soils of this group formed in alluvium in marshes and tidal wetlands. These soils are very deep, have a combination of organic, clayey, or sulfidic material layers, have a water table at or near the soil surface, are saturated most of the time, and are poorly drained or very poorly drained.

Group QQ The soils of this group represent the coastal sand dunes of the tidewater area. These soils are deep, are extremely sandy, have a low available water capacity, and are excessively drained.

The management groups for the map units in the survey area are given in the section “Detailed Soil Map Units” and in table 5.

Prime Farmland

Table 6 names the map unit in the survey area that is considered prime farmland. This designation does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation’s food supply.

Prime farmland is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Hydric Soils

Table 7 lists the map units that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of

Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

1 Altavista-Urban land complex, 0 to 3 percent slopes
2 Augusta-Urban land complex, 0 to 2 percent slopes
10 Dragston-Urban land complex, 0 to 2 percent slopes
17 Newflat-Urban land complex, 0 to 2 percent slopes
19 Peawick-Urban land complex, 0 to 3 percent slopes
20 Seabrook-Urban land complex, 0 to 2 percent slopes
21A Slagle-Urban land complex, 0 to 2 percent slopes
21B Slagle-Urban land complex, 2 to 6 percent slopes
26 Udorthents-Dumps complex
27 Urban land
28 Yemassee-Urban land complex, 0 to 2 percent slopes

Forestland Productivity and Management

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

Forestland Productivity

In table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In tables 9a, 9b, 9c, 9d, and 9e, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the

"National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erosion factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erosion factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreational Development

The soils of the survey area are rated in tables 10a and 10b according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in these tables can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary

facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, saturated hydraulic conductivity (Ksat), corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 11a and 11b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building

site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the

amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 12a and 12b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches or between a depth of 24 inches and a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated

hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (Ksat) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include saturated hydraulic conductivity (Ksat), depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If the downward movement of water through the soil profile is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper

areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 13a and 13b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 13a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 13b, the rating class terms are *good, fair,* and *poor*. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion

and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to

fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

Table 15 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group

index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Soil Properties

Table 16 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil

properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ability of a soil to transmit water or air. The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 17 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced saturated hydraulic conductivity (Ksat) and aeration, and a general degradation of soil structure.

Water Features

Table 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils

are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual

weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 19 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2006). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, semiactive, thermic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The State series is an example of fine-loamy, mixed, semiactive, thermic Typic Hapludults.

Table 20 indicates the order, suborder, great group, subgroup, and family of the soil series in the survey area.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993) and in the "Field Book for Describing and Sampling Soils" (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2006). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Altavista Series

Physiographic province: Coastal Plain
Landform: Uplands
Parent material: Loamy fluviomarine sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 3 percent

Associated Soils

- Augusta soils, which are somewhat poorly drained
- Bojac soils, which are well drained and have less clay in the subsoil than the Altavista soils
- Dragston soils, which are somewhat poorly drained and have less clay in the subsoil than the Altavista soils
- Munden soils, which have less clay in the subsoil than the Altavista soils
- Nimmo soils, which are poorly drained and have less clay in the subsoil than the Altavista soils
- Tomotley soils, which are poorly drained

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Altavista-Urban land complex, 0 to 3 percent slopes; located in a cultivated area, 1.7 miles northeast of the junction of Highways VA-623 and VA-627, about 1.1 miles northwest of the mouth of Parsons Creek, 1.0 mile southwest of the tip of Old Neck marsh; elevation 10 feet; Brandon, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 21 minutes 26.00 seconds N. and long. 76 degrees 53 minutes 19.00 seconds W.

Ap—0 to 11 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable, slightly sticky, nonplastic; few fine roots; common fine tubular pores; moderately acid; clear smooth boundary.

BE—11 to 16 inches; light yellowish brown (10YR 6/4) loam; weak fine granular structure; friable, slightly sticky, nonplastic; few fine roots; common fine tubular and few fine vesicular pores; few fine mica flakes; strongly acid; clear smooth boundary.

Bt1—16 to 28 inches; light olive brown (2.5Y 5/4) loam; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; common fine and medium tubular pores; few faint clay films on all faces of peds; few fine mica flakes; very strongly acid; clear smooth boundary.

Bt2—28 to 37 inches; light olive brown (2.5Y 5/4) clay loam; weak fine and medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine tubular pores; common distinct clay films on all faces of peds; common fine prominent gray (10YR 6/1) iron depletions; few fine mica flakes; very strongly acid; clear smooth boundary.

Bt3—37 to 49 inches; yellowish brown (10YR 5/8) and strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine and medium tubular pores; common faint clay films on all faces of peds; common medium prominent gray (10YR 6/1) iron depletions; few fine mica flakes; very strongly acid; clear smooth boundary.

Btg—49 to 62 inches; gray (10YR 6/1) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine tubular pores; common distinct discontinuous clay films on vertical faces of peds; common medium prominent light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/6) masses of oxidized iron; few fine mica flakes; extremely acid; clear smooth boundary.

Cg—62 to 74 inches; gray (10YR 6/1) stratified fine sandy loam to loamy fine sand to fine sand; single grain; friable, slightly sticky, nonplastic; compact in place; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; few fine mica flakes; extremely acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more

Reaction: Extremely acid to moderately acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 5 percent in the A, E, and B horizons; 0 to 35 percent in the C horizons

Mica flakes: Few to common in the B and C horizons

A or Ap horizon:
- Hue—7.5YR to 2.5Y
- Value—4 to 6
- Chroma—1 to 4
- Texture—sandy loam, fine sandy loam, or loam

E horizon (where present):
- Hue—10YR or 2.5Y
- Value—5 to 7
- Chroma—3 to 8
- Texture—sandy loam, fine sandy loam, or loam

BE horizon:
- Hue—7.5YR to 2.5Y
- Value—5 to 7
- Chroma—3 to 8
- Texture—fine sandy loam, loam, or sandy clay loam

Bt horizon:
- Hue—7.5YR to 2.5Y
- Value—5 to 7
- Chroma—3 to 8
- Texture—fine sandy loam, loam, sandy clay loam, or clay loam
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray; iron depletions occur within the upper 24 inches of the Bt horizon

Btg horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—fine sandy loam, loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BC horizon (where present):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—fine sandy loam, loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

C horizon (where present):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture (fine-earth fraction)—stratified sand, fine sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—stratified sand, fine sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Augusta Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy fluviomarine sediments
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Altavista soils, which are moderately well drained
- Dragston soils, which have less clay in the subsoil than the Augusta soil
- Munden soils, which are moderately well drained and have less clay in the subsoil than the Augusta soil
- Tomotley soils, which are poorly drained

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Aeric Endoaquults

Typical Pedon

Augusta-Urban land complex, 0 to 2 percent slopes; located in a cultivated area, 0.4 mile east of the junction of Highways VA-614 and VA-155, about 30 yards north of Highway VA-614; Providence Forge, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 24 minutes 47.00 seconds N. and long. 77 degrees 2 minutes 24.00 seconds W.

Ap—0 to 8 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable, slightly sticky, nonplastic; common fine roots and few medium and coarse roots; common fine and medium tubular pores; 2 percent rounded quartz gravel; moderately acid; abrupt smooth boundary.

E—8 to 13 inches; pale brown (10YR 6/3) sandy loam; weak medium granular structure; friable, slightly sticky, slightly plastic; common fine roots; common fine and medium tubular pores; common medium distinct gray (10YR 6/1) iron depletions; moderately acid; clear smooth boundary.

Bt—13 to 27 inches; light olive brown (2.5Y 5/4) sandy clay loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine roots; common fine and medium tubular pores; few faint clay films on all faces of peds; few fine prominent light gray (10YR 7/1) iron depletions; very strongly acid; gradual smooth boundary.

BCg—27 to 40 inches; light gray (10YR 7/1) sandy loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine and medium tubular pores; few faint clay films on all faces of peds; many medium distinct olive brown (2.5Y 4/4) masses of oxidized iron; few fine mica flakes; very strongly acid; gradual smooth boundary.

Cg1—40 to 51 inches; grayish brown (2.5Y 5/2) gravelly loamy sand; single grain; loose; few fine and medium tubular pores; common medium distinct light gray (10YR 7/1) iron depletions and many coarse prominent reddish brown (5YR 4/4) masses of oxidized iron; few fine mica flakes; 20 percent rounded quartz gravel; very strongly acid; abrupt smooth boundary.

Cg2—51 to 72 inches; light brownish gray (10YR 6/2) stratified loamy sand to gravelly loamy sand; single grain; loose; many coarse prominent strong brown (7.5YR 4/6) masses of oxidized iron; 18 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Solum thickness: 40 to 80 inches

Reaction: Very strongly acid to moderately acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 5 percent in the A, E, and B horizons; 0 to 20 percent in the C horizons

Mica flakes: None to common throughout the profile

A or Ap horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, or loam

E horizon:

Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BE horizon (where present):
Hue—10YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Bt horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon (where present):
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BCg horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—sandy loam, loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—loamy sand, sandy loam, loam, or stratified with pockets of sandy loam and sand
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Axis Series

Physiographic province: Coastal Plain
Landform: Marshes
Parent material: Loamy marine deposits
Drainage class: Very poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Johnston soils, which have less sulfur than the Axis soils and are on adjacent flood plains
- Tomotley soils, which are poorly drained
- Bohicket soils, which have more clay and less sulfur than the Axis soils
- Lawnes soils, which have less salt than the Axis soils

Taxonomic Classification

Coarse-loamy, mixed, superactive, nonacid, thermic Typic Sulfaquents

Typical Pedon

Axis very fine sandy loam, 0 to 2 percent slopes, very frequently flooded; York County, VA; located 0.47 mile north of the junction of highways VA-622 and VA-617, about 300 feet northwest of highway VA-712; Poquoson West, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 11 minutes 46.00 seconds N. and long. 76 degrees 24 minutes 6.00 seconds W.

A—0 to 14 inches; very dark grayish brown (10YR 3/2) very fine sandy loam; massive; slightly sticky, slightly plastic; many fine and medium roots; moderately acid; flows through fingers when squeezed and leaves residue in hand; clear smooth boundary.

Cg1—14 to 35 inches; gray (5Y 5/1) very fine sandy loam; massive; slightly sticky, slightly plastic; few fine prominent dark yellowish brown (10YR 4/4) masses of oxidized iron; common medium distinct olive (5Y 5/4) masses of oxidized iron; moderately acid; moderate sulfur odor; gradual smooth boundary.

Cg2—35 to 50 inches; dark gray (5Y 4/1) fine sandy loam; massive; slightly sticky, slightly plastic; common medium distinct olive (5Y 5/4) masses of oxidized iron; slightly alkaline; moderate sulfur odor; gradual smooth boundary.

Cg3—50 to 70 inches; light olive brown (2.5Y 5/4) and gray (5Y 6/1) fine sandy loam; massive; nonsticky, nonplastic; few fine mica flakes; moderately alkaline; moderate sulfur odor.

Range in Characteristics

Reaction: Moderately acid to moderately alkaline in natural state; ranges to extremely acid within a depth of 40 inches in some pedons when dry

A horizon:
Hue—10YR to 5Y
Value—3
Chroma—1 or 2
Texture—very fine sandy loam, fine sandy loam, silt loam, sandy loam or the mucky analogues of these textures

Cg horizon:
Hue—2.5Y or 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—very fine sandy loam, fine sandy loam, sandy loam, or loam

Bethera Series

Physiographic province: Coastal Plain
Landform: Stream terraces and upland flats
Parent material: Clayey marine sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 2 percent

Associated Soils

- Tomotley soils, which are poorly drained
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Bethera soils

- Altavista and Augusta soils, which have less clay than the Bethera soils and are better drained
- Newflat and Peawick soils, which are better drained than the Bethera soils

Taxonomic Classification

Fine, mixed, semiactive, thermic Typic Paleaquults

Typical Pedon

Bethera-Urban land complex, 0 to 2 percent slopes; located in an area of woodland, 0.6 mile north-northeast of the junction of Highways VA-618 and VA-602, about 200 yards west of Highway VA-618; Providence Forge, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 24 minutes 5.00 seconds N. and long. 77 degrees 5 minutes 54.00 seconds W.

A1—0 to 4 inches; dark gray (10YR 4/1) silt loam; moderate fine and medium granular structure; friable, slightly sticky, slightly plastic; many fine and few coarse roots; extremely acid; clear smooth boundary.

A2—4 to 7 inches; dark gray (10YR 4/1) silt loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; common fine and few coarse roots; many very fine tubular pores; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron; extremely acid; clear smooth boundary.

E—7 to 12 inches; gray (5Y 6/1) silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and coarse roots; many very fine tubular pores; many fine prominent strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Btg1—12 to 40 inches; light gray (5Y 7/1) clay loam; strong medium subangular blocky structure; firm, moderately sticky, moderately plastic; few fine and coarse roots; many very fine tubular pores; few faint clay films on surfaces along pores and common distinct clay films on all faces of peds; many fine prominent yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and yellowish red (5YR 5/6) masses of oxidized iron; very strongly acid; gradual smooth boundary.

Btg2—40 to 72 inches; light gray (5Y 7/1) clay loam; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; few very fine tubular pores; few faint clay films on surfaces along pores and common distinct clay films on all faces of peds; few coarse prominent dark yellowish brown (10YR 3/6) and strong brown (7.5YR 5/6) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 60 to 80 inches or more
Reaction: Extremely acid to moderately acid throughout the profile

A or Ap horizon:
Hue—10YR or 2.5Y
Value—2 to 4
Chroma—1 or 2
Texture—fine sandy loam, loam, or silt loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

E horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 or 2
Texture—fine sandy loam, loam, or silt loam

Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

BEg horizon (where present):
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 or 2
Texture—loam, silt loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—clay loam, silty clay loam, sandy clay, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon (where present):
Hue—10YR to 5BG; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—sandy clay loam, sandy clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Bohicket Series

Physiographic province: Coastal Plain
Landform: Tidal marshes
Parent material: Loamy and clayey alluvial sediments
Drainage class: Very poorly drained
Slowest saturated hydraulic conductivity: Low
Slope range: 0 to 1 percent

Associated Soils

- Levy soils, which are very poorly drained and are in fresh water marshes
- Johnston soils, which have less clay and less sulfur than the Bohicket soils and are on flood plains
- Axis soils, which have less clay and more sulfur than the Bohicket soils

Taxonomic Classification

Fine, mixed, superactive, nonacid, thermic Typic Sulfaquents

Typical Pedon

Bohicket muck, 0 to 1 percent slopes, very frequently flooded; located in an area of saltwater grasses, 0.38 mile north of the junction of Highway VA-30 and the Mattaponi River Bridge at West Point; West Point, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 32 minutes 40.00 seconds N. and long. 76 degrees 47 minutes 12.00 seconds W.

Ag—0 to 8 inches; gray (5Y 5/1) silty clay loam, muck; massive; slightly sticky, slightly plastic; many fine and medium roots; material flows easily between fingers when squeezed; neutral; gradual wavy boundary.

Cg1—8 to 29 inches; dark greenish gray (5GY 4/1) silty clay loam; massive; moderately sticky, slightly plastic; few fine roots; material flows very easily between fingers when squeezed; strong sulfur odor; slightly alkaline; gradual wavy boundary.
Cg2—29 to 65 inches; dark greenish gray (5GY 4/1) silty clay; massive; moderately sticky, moderately plastic; material flows very easily between fingers when squeezed; moderate sulfur odor; moderately alkaline.

Range in Characteristics

Soil reaction: Slightly acid to moderately alkaline; extremely acid upon drying
Organic layer thickness (where present): 1 to 16 inches

Organic layer (where present):
Organic material—sapric or hemic

Ag horizon:
Hue—10YR to 5G; or neutral in hue and has value of 2 to 5
Value—2 to 5
Chroma—1 or 2
Texture—silty clay loam, silty clay, or clay
Cg horizon (upper part):
Hue—10YR to 5BG; or neutral in hue and has value of 2 to 7
Value—2 to 7
Chroma—1 or 2
Texture—clay loam, silty clay loam, sandy clay, clay, or silty clay or mucky analogues of these textures
Cg horizon (lower part):
Hue—10YR to 5BG; or neutral in hue and has value of 2 to 7
Value—2 to 7
Chroma—1 or 2
Texture—ranges from sand to clay or mucky analogues of these textures

Bojac Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy fluviomarine deposits
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 3 percent

Associated Soils

- Altavista soils, which are moderately well drained and have more clay in the subsoil than the Bojac soil
- Munden soils, which are moderately well drained
- Dragston and Nimmo soils, which are poorly drained
- Seabrook soils, which have less clay in the subsoil than the Bojac soils and are moderately well drained

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Bojac-Urban land complex, 0 to 3 percent slopes; located in a cultivated area, 0.7 mile southeast of the end of Highway VA-619, about 1.5 miles southwest of the mouth of Kittewan Creek, 1.2 miles northeast of the tip of Weyanoke Point; Charles City, VA,

7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 17 minutes 21.00 seconds N. and long. 77 degrees 3 minutes 45.00 seconds W.

Ap—0 to 10 inches; dark brown (7.5YR 3/4) loamy fine sand; weak fine granular structure; very friable, nonsticky, nonplastic; common fine roots; common fine and medium tubular pores; few fine mica flakes; very strongly acid; clear smooth boundary.

Bt—10 to 35 inches; brown (7.5YR 4/4) sandy loam; weak coarse subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; common fine and medium tubular pores; common clay bridges between sand grains and many clay films on all faces of peds; few fine mica flakes; moderately acid; gradual smooth boundary.

C—35 to 70 inches; strong brown (7.5YR 4/6) loamy sand; single grain; loose; common fine and medium tubular pores; common fine mica flakes; slightly acid.

Range in Characteristics

Reaction: Extremely acid to slightly acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 5 percent in the A, E, and B horizons; 0 to 15 percent in the C horizon

Mica flakes: Few to common in the B and C horizons

A horizon:
- Hue—7.5YR to 2.5Y
- Value—3
- Chroma—1 or 2
- Texture—loamy fine sand, sandy loam, or fine sandy loam

Ap horizon (where present):
- Hue—7.5YR to 2.5Y
- Value—3 to 6
- Chroma—1 to 4
- Texture—loamy fine sand, sandy loam, or fine sandy loam

E horizon (where present):
- Hue—10YR or 2.5Y
- Value—4 to 7
- Chroma—4 or 6
- Texture—loamy fine sand, sandy loam, or fine sandy loam

BE horizon (where present):
- Hue—7.5YR to 2.5Y
- Value—4 to 6
- Chroma—4 or 6
- Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
- Hue—5YR to 10YR
- Value—4 to 6
- Chroma—4 to 8
- Texture—sandy loam, fine sandy loam, or loam or a thin subhorizon of sandy clay loam or clay loam
- Redoximorphic features—iron depletions in shades of olive and gray below 40 inches

BC horizon (where present):
- Hue—5YR to 10YR
- Value—4 to 6

Chroma—4 to 8
Texture—loamy sand or loamy fine sand
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray below 40 inches

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—usually stratified coarse sand to loamy fine sand
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Chickahominy Series

Physiographic province: Coastal Plain
Landform: Stream terraces
Parent material: Clayey alluvial sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low
Slope range: 0 to 2 percent

Associated Soils

- Peawick soils, which are moderately well drained
- Newflat soils, which are somewhat poorly drained
- Altavista and Augusta soils, which have less clay than the Chickahominy soils and are better drained
- State soils, which have less clay than the Chickahominy soils and are better drained

Taxonomic Classification

Fine, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Chickahominy-Urban land complex, 0 to 2 percent slopes; located in an area of woodland, 1.2 miles northwest of where Highway VA-5 crosses the Chickahominy River, 30 yards south of Highway VA-5, about 1.3 miles north of the mouth of Tomahund Creek, 0.9 mile southwest of the mouth of Morris Creek; Brandon, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 16 minutes 6.00 seconds N. and long. 76 degrees 53 minutes 16.00 seconds W.

A—0 to 2 inches; dark grayish brown (2.5Y 4/2) silt loam; moderate fine and medium granular structure; friable, moderately sticky, slightly plastic; many fine, medium, and coarse roots; few fine tubular pores; extremely acid; abrupt smooth boundary.

Eg—2 to 5 inches; dark grayish brown (10YR 4/2) loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; many fine, medium, and coarse roots; common very fine tubular pores; common fine prominent light olive brown (2.5Y 5/4) masses of oxidized iron; extremely acid; clear smooth boundary.

Btg1—5 to 35 inches; grayish brown (10YR 5/2) clay; strong fine and medium subangular blocky structure; firm, very sticky, very plastic; few fine roots; many distinct clay films on all faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron; few fine mica flakes; extremely acid; gradual smooth boundary.

Btg2—35 to 50 inches; gray (5Y 5/1) clay; strong medium and coarse angular blocky structure; firm, very sticky, very plastic; few fine roots; many distinct clay films on

all faces of peds; many coarse prominent yellowish brown (10YR 5/6) masses of oxidized iron; extremely acid; gradual wavy boundary.

Btg3—50 to 64 inches; gray (10YR 6/1) clay; moderate medium subangular blocky and moderate medium angular blocky structure; firm, very sticky, very plastic; many distinct clay films on all faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 60 to 80 inches or more

Reaction: Extremely acid to strongly acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 2 percent rounded quartz gravel in the A, E and B horizons

A horizon:
- Hue—10YR to 5Y
- Value—3 to 6
- Chroma—1 or 2
- Texture—very fine sandy loam, loam, or silt loam

Eg horizon:
- Hue—10YR to 5Y
- Value—3 to 6
- Chroma—1 or 2
- Texture—very fine sandy loam, loam, or silt loam
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BEg horizon (where present):
- Hue—10YR to 5Y; or neutral in hue and has value of 4 to 6
- Value—4 to 6
- Chroma—1 or 2
- Texture—loam, silt loam, clay loam, or silty clay loam
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Btg horizon:
- Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
- Value—4 to 7
- Chroma—1 or 2
- Texture—clay loam, silty clay loam, silty clay, or clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Cg horizon (where present):
- Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
- Value—4 to 7
- Chroma—1 or 2
- Texture—stratified; ranging from sand to clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Craven Series

Physiographic province: Coastal Plain

Landform: Marine terraces

Parent material: Clayey marine sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 6 percent

Associated Soils

- Nevarc soils, which have a perched water table
- Uchee soils, which are well drained and have thick, sandy surface layers
- Slagle soils, which have less clay in the subsoil than the Craven soils
- Suffolk soils, which have less clay than the Craven soils and are better drained

Taxonomic Classification

Fine, mixed, subactive, thermic Aquic Hapludults

Typical Pedon

Craven-Urban land complex, 0 to 2 percent slopes; located in a cultivated area, 70 yards south of the Nance Shop Historic Marker on Highway VA-603, about 0.6 mile west-southwest of the junction of Highways VA-603 and VA-609 at the communication tower, 1.0 mile east-northeast of the junction of Highways VA-603 and VA-605; elevation 130 feet; Roxbury, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 25 minutes 55.00 seconds N. and long. 77 degrees 8 minutes 57.00 seconds W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) fine sandy loam; moderate medium granular structure; friable, slightly sticky, slightly plastic; common fine and medium roots and common coarse roots; common fine and medium tubular pores; strongly acid; abrupt smooth boundary.

Bt1—10 to 22 inches; strong brown (7.5YR 5/6) clay; strong fine angular blocky structure; firm, moderately sticky, moderately plastic; few medium and coarse roots; few fine tubular pores; many distinct clay films on all faces of peds; common fine prominent red (2.5YR 5/8) and distinct yellowish brown (10YR 5/6) masses of oxidized iron; common fine mica flakes; strongly acid; clear smooth boundary.

Bt2—22 to 36 inches; yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) clay; strong fine angular blocky structure; firm, moderately sticky, moderately plastic; common fine and few medium roots; many distinct clay films on all faces of peds; common medium prominent gray (10YR 6/1) iron depletions; many medium distinct red (2.5YR 5/8) and yellowish red (5YR 5/8) masses of oxidized iron; few fine mica flakes; very strongly acid; gradual smooth boundary.

Bt3—36 to 45 inches; strong brown (7.5YR 5/8) clay; strong medium angular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; few distinct clay films on all faces of peds; common medium prominent gray (10YR 6/1) iron depletions; many medium distinct reddish brown (2.5YR 5/4) and yellowish red (5YR 5/8) masses of oxidized iron; few fine mica flakes; extremely acid; gradual smooth boundary.

BCg—45 to 70 inches; light gray (10YR 7/1) clay loam; structureless massive; friable, moderately sticky, moderately plastic; few fine roots; many medium distinct reddish brown (2.5YR 5/4) and strong brown (7.5YR 5/8) masses of oxidized iron; few fine mica flakes; extremely acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Reaction: Extremely acid to strongly acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 3 percent throughout

A horizon (where present):
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 3
Texture—fine sandy loam, loam, or silt loam

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 3
Texture—fine sandy loam, loam, or silt loam; clay loam in eroded areas

E horizon (where present):
Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 4
Texture—fine sandy loam, loam, or silt loam

BA or BE horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—loam, sandy clay loam, clay loam, or silty clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—4 to 8
Texture—clay loam, silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—clay loam, silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

BC or BCg horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2; some pedons have horizons with chroma of 3 or more
Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

C or Cg horizon (where present):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 to 6
Texture—loamy sand, sandy loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Dragston Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy sediments
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 2 percent

Associated Soils

- Altavista soils, which are moderately well drained and have more clay in the subsoil than the Dragston soils
- Augusta soils, which have more clay in the subsoil than the Dragston soils
- Munden soils, which are moderately well drained
- Nimmo soils, which are poorly drained
- Seabrook soils, which are moderately well drained and have less clay in the subsoil than the Dragston soils
- Tomotley soils, which are poorly drained and have more clay in the subsoil than the Dragston soils

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Aeric Endoaquults

Typical Pedon

Dragston-Urban land complex, 0 to 2 percent slopes; located in an area of woodland, 0.2 mile southwest of a borrow pit on Highway VA-618, about 0.4 mile south-southwest of the crossing of a power line and Highway VA-618, about 0.5 mile south-southwest of a gauging station on the Chickahominy River, 50 yards west of Highway VA-618; Providence Forge, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 25 minutes 54.00 seconds N. and long. 77 degrees 4 minutes 2.00 seconds W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; friable, slightly sticky, nonplastic; many fine, medium, and coarse roots; common fine and medium tubular pores; very strongly acid; abrupt smooth boundary.

E—4 to 8 inches; pale brown (10YR 6/3) fine sandy loam; weak fine and medium granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; common fine and medium tubular pores; common medium distinct gray (10YR 6/1) iron depletions; very strongly acid; abrupt smooth boundary.

BE—8 to 12 inches; pale brown (10YR 6/3) and yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; few fine roots; common fine and medium tubular pores; very strongly acid; clear smooth boundary.

Btg—12 to 25 inches; gray (10YR 6/1) fine sandy loam; weak medium subangular blocky structure; friable, moderately sticky, slightly plastic; few fine and medium roots; common fine and medium and common coarse tubular pores; few faint clay films on all faces of peds and few faint clay bridges between sand grains; many coarse prominent yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; gradual smooth boundary.

BC—25 to 35 inches; yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) loamy fine sand; massive; friable, slightly sticky, slightly plastic; few fine and medium roots; common fine and medium and common coarse tubular pores; few faint clay bridges between sand grains and few faint clay films on all faces of peds;

many medium prominent gray (10YR 6/1) iron depletions; few fine mica flakes; slightly acid; gradual smooth boundary.
C1—35 to 45 inches; yellowish brown (10YR 5/6) sand; single grain; loose; many medium distinct light brownish gray (10YR 6/2) iron depletions; common very fine and fine titanium oxide mineral grains; slightly acid; clear smooth boundary.
C2—45 to 54 inches; dark yellowish brown (10YR 4/4) sand; single grain; loose; common medium distinct brown (10YR 5/3) iron depletions; many very fine and fine titanium oxide mineral grains; slightly acid; clear smooth boundary.
C3—54 to 64 inches; yellowish brown (10YR 5/4) sand; single grain; loose; many coarse distinct grayish brown (10YR 5/2) iron depletions; slightly acid; clear smooth boundary.
C4—64 to 72 inches; dark yellowish brown (10YR 4/6) sandy loam; massive; friable, moderately sticky, moderately plastic; slightly acid; clear smooth boundary.
Cg—72 to 75 inches; greenish gray (5BG 6/1) sandy loam; massive; friable, moderately sticky, moderately plastic; slightly acid.

Range in Characteristics

Solum thickness: 25 to 50 inches
Reaction: Very strongly acid or strongly acid in the A, E, and upper B horizons; very strongly acid to slightly acid in the lower part of the B horizon and the C horizon
Rock fragments: 0 to 2 percent in the A, E, and B horizons; 0 to 10 percent in the C horizons

A or Ap horizon:
Hue—10YR to 5Y
Value—2 to 5; value of 3 or less where the horizon is less than 10 inches thick
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

E horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—2 to 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BA or BE horizon:
Hue—10YR to 5Y
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 6
Value—4 to 6
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, or loam; some pedons have subhorizon of sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BC or BCg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 6
Value—4 to 6

Chroma—1 to 8
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

C horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—3 to 8
Texture—sand, fine sand, loamy sand, loamy fine sand, or sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon:
Hue—10YR to 5BG; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—sand, fine sand, loamy sand, loamy fine sand, or sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Duckston Series

Physiographic province: Coastal Plain
Landform: Depressions between coastal dunes
Parent material: Marine sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Very high
Slope range: 0 to 2 percent

Associated Soils

- Axis, Bohicket, Lawnes, and Levy soils, which have more clay, salts, and sulfur than the Duckston soils
- Johnston soils, which have more clay than the Duckston soils and are on adjacent flood plains

Taxonomic Classification

Siliceous, thermic Typic Psammaquents

Typical Pedon

Duckston fine sand, 0 to 2 percent slopes, frequently flooded; located 4.0 miles north of the North Carolina-Virginia state line, 2,500 feet west of the Atlantic Ocean, in the city of Virginia Beach; Knotts Island, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 36 degrees 37 minutes 25.00 seconds N. and long. 75 degrees 53 minutes 48.00 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; common fine and medium roots; extremely acid; few clean sand grains; clear smooth boundary.
Cg1—4 to 15 inches; grayish brown (10YR 5/2) sand; single grain; loose; extremely acid; few black and strong brown fine mineral grains; gradual wavy boundary.
Cg2—15 to 60 inches; gray (10YR 6/1) sand; single grain; loose; common fine roots; extremely acid; few black and strong brown fine mineral grains; gradual wavy boundary.

Range in Characteristics

Reaction: Extremely acid to moderately alkaline throughout

A horizon:
Hue—10YR to 5Y
Value—3 or 4
Chroma—1 or 2
Texture—fine sand

Cg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 5 or 6
Value—5 or 6
Chroma—1 or 2
Texture—sand or fine sand

Johnston Series

Physiographic province: Coastal Plain
Landform: Floodplains
Parent material: Loamy and sandy alluvium
Drainage class: Very poorly drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 2 percent

Associated Soils

- Axis, Bohicket, Lawnes, and Levy soils, which have more salts and sulfur than the Johnston soils and are in marshes
- Altavista soils, which are moderately well drained
- Munden soils, which are moderately well drained
- Augusta soils, which are somewhat poorly drained
- Nimmo soils, which are poorly drained

Taxonomic Classification

Fine-loamy, siliceous, active, nonacid, thermic Cumulic Humaquepts

Typical Pedon

Johnston loam, 0 to 2 percent slopes, frequently flooded; located about 600 feet southeast of the junction of VA-628 and Diascund Creek; Walkers, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 28 minutes 46.00 seconds N. and long. 76 degrees 58 minutes 20.00 seconds W.

A—0 to 24 inches; black (10YR 2/1) loam; weak medium granular structure; very friable, slightly sticky, slightly plastic; many fine and medium roots throughout; very strongly acid; gradual wavy boundary.

Cg1—24 to 30 inches; dark gray (10YR 4/1) sandy loam; massive; very friable, slightly sticky, slightly plastic; few fine roots throughout; very strongly acid; clear smooth boundary.

Cg2—30 to 64 inches; dark grayish brown (10YR 4/2) loamy sand; massive; very friable, slightly sticky, nonplastic; few fine roots throughout; strongly acid.

Range in Characteristics

Depth to bedrock: More than 5 feet
Other features: Some pedons have a few inches of recent alluvial sediments deposited over the dark-colored A horizon

A horizon:
Hue—10YR or 2.5Y; or neutral in hue and has value of 2 or 3
Value—2 or 3
Chroma—1 to 3
Texture—mucky loam, loam, or sandy loam

Cg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—loamy sand, sandy loam, or loam

Note: The soils mapped as Johnston in the survey area are taxadjuncts to the series because they have a higher clay content and a higher pH value than what is established for the series. These differences do not affect the use and management of the soil.

Lawnes Series

Physiographic province: Coastal Plain
Landform: Marshes
Parent material: Herbaceous organic materials over loamy alluvial sediments
Drainage class: Very poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 1 percent

Associated Soils

- Bohicket and Levy soils, which have more clay than the Lawnes soils
- Duckston soils, which have less clay than the Lawnes soils and are intermingled in dunes and marshes

Taxonomic Classification

Coarse-loamy, mixed, superactive, nonacid, thermic Typic Sulfaquents

Typical Pedon

Lawnes loam, 0 to 1 percent slopes, very frequently flooded; located in Old Neck marsh, about 2.2 miles northeast of Highways VA-615 and VA-627, about 2.8 miles east of the junction of Highways VA-624 and VA-615 at Holdcroft; Brandon, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 21 minutes 28.00 seconds N. and long. 76 degrees 52 minutes 53.00 seconds W.

A—0 to 13 inches; dark gray (10YR 4/1) loam; 1 percent unrubbed fiber; massive; moderately sticky, slightly plastic; many fine live roots; flows easily between fingers when squeezed; n-value greater than 1; sulfurous odor; strongly acid; clear smooth boundary.

Cg1—13 to 26 inches; dark gray (10YR 4/1) loam; 5 percent rubbed fiber; structureless massive; slightly sticky, slightly plastic; common fine roots; flows easily between fingers when squeezed; n-value greater than 1; common lenses and pockets of clay loam; sulfurous odor; strongly acid; diffuse smooth boundary.

Cg2—26 to 40 inches; very dark gray (10YR 3/1) loam; massive; moderately sticky, slightly plastic; few fine roots; flows easily between fingers when squeezed; n-value greater than 1; common pockets of sapric and hemic material; sulfurous odor; strongly acid; diffuse smooth boundary.

Cg3—40 to 55 inches; very dark gray (10YR 3/1) loam; massive; slightly sticky, slightly plastic; few fine and medium roots; flows easily between fingers when squeezed; n-value greater than 1; sulfurous odor; strongly acid; gradual smooth boundary.

Cg4—55 to 62 inches; very dark gray (10YR 3/1) sand; single grain; loose; n-value less than 1; strongly acid.

Range in Characteristics

Thickness of organic layer: 8 to 16 inches
Reaction: Strongly acid to neutral throughout the profile in natural state; extremely acid throughout the soil upon drying
n-value: Greater than 0.7 to a depth of 20 inches
Origin of organic material: Herbaceous plants

Organic layer (where present):
Hue—10YR to 5GY; or neutral in hue and has value of 2 to 4
Value—2 to 4
Chroma—1 or 2
Texture—muck
Organic material—dominantly hemic; thin surface layer of sapric material in some pedons

A horizon (where present):
Hue—10YR to 5Y
Value—3 or 4
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, loam, or silt loam or the mucky analogues of these textures

Cg horizon:
Hue—10YR to 5GY; or neutral in hue and has value of 2 to 5
Value—2 to 5
Chroma—1 or 2
Texture—variable and stratified; clay content less than 18 percent in control section; layers of sandy clay loam, silty clay loam, or clay loam and layers of the mucky analogues of these textures or buried hemist layers (Oeb), or both, below a depth of 40 inches in some pedons

Levy Series

Physiographic province: Coastal Plain
Landform: Marshes
Parent material: Clayey estuarine sediments
Drainage class: Very poorly drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 2 percent

Associated Soils

- Axis and Lawnes soils, which have less clay than the Levy soils
- Johnston soils, which have less salt and sulfur than the Levy soils and are on adjacent flood plains
- Bohicket soils, which have more salts and sulfur than the Levy soils

Taxonomic Classification

Fine, mixed, superactive, acid, thermic Typic Hydraquents

Typical Pedon

Levy silty clay, 0 to 2 percent slopes, very frequently flooded; located 2.4 miles west-northwest of Claremont, 2.0 miles north-northwest of the junction of Highways VA-613

and VA-654, about 1.5 miles southwest of the mouth of Upper Chippokes Creek, 1.0 mile northwest of the end of Highway VA-654, end of unpaved road, in Upper Chippokes Creek marsh; Savedge, VA, 7.5-minute topographic quadrangle, NAD27; lat. 37 degrees 13 minutes 50.00 seconds N. and long. 77 degrees 0 minutes 33.00 seconds W.

A—0 to 20 inches; dark olive gray (5Y 3/2) mucky silty clay; massive; very sticky, nonplastic; many live roots; about 10 percent sapric material; n-value greater than 0.7; extremely acid; gradual smooth boundary.
Cg1—20 to 40 inches; dark gray (5Y 4/1) mucky silty clay; massive; very sticky, nonplastic; common live roots; about 5 percent sapric material; n-value greater than 0.7; extremely acid; gradual smooth boundary.
Cg2—40 to 60 inches; very dark gray (5Y 3/1) mucky clay; massive; moderately sticky, nonplastic; many live roots; about 5 percent sapric material; n-value greater than 0.7; extremely acid; gradual smooth boundary.
Cg3—60 to 80 inches; gray (5Y 6/1) and black (5Y 2.5/1) stratified mucky sandy loam to sandy loam; massive; moderately sticky, nonplastic; common live roots; about 5 percent sapric material; very strongly acid.

Range in Characteristics

Soil reaction: Extremely acid to strongly acid to 40 inches; very strongly acid to slightly alkaline below 40 inches
n-value: More than 0.7 to a depth of 40 inches

O horizons: (where present)
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—1 to 3
Texture—loam, silty clay loam, silty clay, or clay or the mucky analogues of these textures
Organic material—leaves, grasses, twigs, and roots

A horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 3 to 7
Value—3 to 7
Chroma—1 to 3
Texture—silt loam, silty clay loam, silty clay, or clay or the mucky analogues of these textures
Redoximorphic features—masses of oxidized iron in shades of red, yellow, and brown and iron depletions in shades of gray

Cg horizon:
Hue—10YR to 5G
Value—3 to 6
Chroma—1 or 2
Texture—clay or silty clay; stratified sand to clay below 40 inches; organic layers and mucky analogues below 40 inches in some pedons
Redoximorphic features—masses of oxidized iron in shades of red, yellow, and brown and iron depletions in shades of gray

Munden Series

Physiographic province: Coastal Plain
Landform: Uplands
Parent material: Loamy and sandy fluviomarine sediments

Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 3 percent

Associated Soils

- Altavista soils, which have more clay in the subsoil than the Munden soils
- Augusta soils, which are somewhat poorly drained and have more clay in the subsoil than the Munden soils
- Bojac soils, which are well drained
- Dragston soils, which are somewhat poorly drained
- Seabrook soils, which are sandy throughout

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Munden-Urban land complex, 0 to 3 percent slopes; located in an area of woodland, 1.0 mile west-southwest of Walker's Dam, 170 yards southeast of Binns Bar along the Chickahominy River, 1.7 miles north-northeast of Highway VA-615 on a private road to Walker's Dam, 70 yards north of a farm lane; Walkers, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 23 minutes 44.00 seconds N. and long. 76 degrees 57 minutes 41.00 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) loamy fine sand; weak fine granular structure; very friable, nonsticky, nonplastic; common fine and medium and few coarse roots; common fine, medium, and coarse tubular pores; very strongly acid; clear smooth boundary.

E—6 to 14 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine and medium granular structure; very friable, nonsticky, nonplastic; few fine and medium roots; common fine, medium, and coarse tubular pores; very strongly acid; clear smooth boundary.

Bt1—14 to 27 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine and medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine and medium roots; common fine, medium, and coarse tubular pores; few faint clay films on all faces of peds and common distinct clay bridges between sand grains; few fine mica flakes; very strongly acid; clear smooth boundary.

Bt2—27 to 38 inches; light olive brown (2.5Y 5/6) fine sandy loam; weak medium and coarse subangular blocky structure; very friable, moderately sticky, moderately plastic; few fine and medium roots; common fine, medium, and coarse tubular pores; few faint clay films on all faces of peds and common distinct clay bridges between sand grains; common medium prominent light gray (10YR 7/1) iron depletions; few fine mica flakes; very strongly acid; clear smooth boundary.

C—38 to 50 inches; light yellowish brown (2.5Y 6/4) loamy sand; single grain; loose; few fine mica flakes; very strongly acid; clear smooth boundary.

Cg1—50 to 61 inches; light gray (10YR 7/1) sand; single grain; loose; common fine mica flakes; strongly acid; clear smooth boundary.

Cg2—61 to 70 inches; light gray (10YR 7/1) sand; single grain; loose; many coarse prominent yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) masses of oxidized iron; common fine mica flakes; very strongly acid; clear wavy boundary.

2Cg3—70 to 74 inches; light gray (10YR 7/1) loamy sand; single grain; loose; common medium distinct light yellowish brown (10YR 6/4) masses of oxidized iron; common fine mica flakes; very strongly acid.

Range in Characteristics

Solum thickness: 25 to 50 inches or more
Reaction: Very strongly acid to moderately acid throughout the profile, except where lime has been applied
Rock fragments: 0 to 5 percent gravel throughout the profile

A horizon (where present):
Hue—10YR or 2.5Y
Value—3 or 4
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

E horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

BA or BE horizon (where present):
Hue—10YR to 5Y
Value—5 or 6
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray in the lower part of the horizon

C horizon:
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—sand, fine sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon:
Hue—7.5YR to 5Y; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—sand, fine sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Nevarc Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Clayey and loamy marine sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 6 to 50 percent

Associated Soils

- Craven soils, which are on the less steep slopes
- Slagle soils, which have less clay in the subsoil than the Nevarc soils
- Uchee soils, which have a thick sandy surface and are better drained than the Nevarc soils
- Tomotley soils, which have less clay than the Nevarc soils and are poorly drained

Taxonomic Classification

Fine, mixed, subactive, thermic Aquic Hapludults

Typical Pedon

Nevarc-Uchee complex, 15 to 50 percent slopes; located in an area of woodland, 2.9 miles southeast of the junction of Highways VA-623 and VA-621, about 150 yards northwest of the north boat landing in the Chickahominy Wildlife Management Area; Brandon, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 18 minutes 57.00 seconds N. and long. 76 degrees 53 minutes 14.00 seconds W.

A—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many fine, common medium, and few coarse roots; common fine and medium tubular pores; extremely acid; abrupt smooth boundary.

E—5 to 11 inches; pale brown (10YR 6/3) loam; moderate medium granular structure; friable, slightly sticky, slightly plastic; common fine and medium and few coarse roots; common fine and medium tubular pores; extremely acid; abrupt smooth boundary.

Bt1—11 to 26 inches; yellowish brown (10YR 5/4) clay; strong fine and medium subangular blocky and strong fine and medium angular blocky structure; firm, moderately sticky, moderately plastic; common fine and medium and few coarse roots; common fine tubular pores; many distinct clay films on all faces of peds; extremely acid; gradual smooth boundary.

Bt2—26 to 42 inches; yellowish brown (10YR 5/4) clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common fine and medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds; common medium prominent yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) masses of oxidized iron; common medium distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; gradual smooth boundary.

BC—42 to 54 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine and medium tubular pores; common distinct clay films on all faces of peds; common medium prominent yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) masses of oxidized iron; common medium distinct grayish brown (10YR 5/2) iron depletions; extremely acid; gradual smooth boundary.

C—54 to 72 inches; yellowish brown (10YR 5/6) fine sandy loam; massive; friable, slightly sticky, slightly plastic; few fine tubular pores; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Reaction: Extremely acid to moderately acid throughout the profile
Rock fragments: 0 to 2 percent gravel throughout the profile

A horizon:
- Hue—7.5YR to 2.5Y
- Value—2 to 5
- Chroma—2 to 4
- Texture—sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam

E horizon:
- Hue—10YR or 2.5Y
- Value—5 to 7
- Chroma—3 to 8
- Texture—sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam

Bt horizon (upper part):
- Hue—7.5YR or 10YR
- Value—4 to 7
- Chroma—4 to 8
- Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, clay, or silty clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Bt horizon (lower part):
- Hue—5YR to 2.5Y
- Value—4 to 7
- Chroma—3 to 8
- Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, clay, or silty clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BC horizon:
- Hue—5YR to 2.5Y
- Value—4 to 7
- Chroma—3 to 8
- Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

C horizon:
- Hue—5YR to 2.5Y
- Value—4 to 7
- Chroma—3 to 8
- Texture—sand, loamy sand, sandy loam, or fine sandy loam; some pedons stratified or contain pockets of contrasting textures ranging from sand to clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon (where present):
- Hue—5YR to 2.5Y
- Value—4 to 7
- Chroma—1 or 2
- Texture—sand, loamy sand, sandy loam, or fine sandy loam; some pedons stratified or contain pockets of contrasting textures ranging from sand to clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Newflat Series

Physiographic province: Coastal Plain
Landform: Stream terraces
Parent material: Clayey alluvial sediments
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Low
Slope range: 0 to 2 percent

Associated Soils

- Chickahominy soils, which are poorly drained
- Dogue soils, which are moderately well drained and have less silt in the subsoil than the Newflat soil
- Peawick soils, which are moderately well drained
- Altavista and State soils, which have less clay than the Newflat soils and are better drained

Taxonomic Classification

Fine, mixed, subactive, thermic Aeric Endoaquults

Typical Pedon

Newflat-Urban land complex, 0 to 2 percent slopes; located in an area of woodland, 0.7 mile east-southeast of the junction of Highways VA-621 and VA-623 on Highway VA-621, about 0.9 mile southeast of the junction of Highways VA-623 and VA-627, about 1.8 miles southwest of the mouth of Parsons Creek; Brandon, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 20 minutes 26.00 seconds N. and long. 76 degrees 54 minutes 57.00 seconds W.

A—0 to 2 inches; gray (10YR 5/1) silt loam; weak fine and medium granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E—2 to 6 inches; pale brown (10YR 6/3) silt loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; common medium distinct gray (10YR 6/1) iron depletions; very strongly acid; clear smooth boundary.

Bt—6 to 14 inches; brown (10YR 5/3) silty clay; strong fine angular blocky structure; firm, moderately sticky, moderately plastic; many fine and medium and few coarse roots; common distinct clay films on all faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions; few fine mica flakes; very strongly acid; clear smooth boundary.

Btg1—14 to 24 inches; gray (5Y 6/1) silty clay; massive; firm, moderately sticky, moderately plastic; common fine and medium roots; common medium prominent strong brown (7.5YR 5/6) masses of oxidized iron; few fine mica flakes; very strongly acid; gradual smooth boundary.

Btg2—24 to 55 inches; gray (5Y 5/1) silty clay; massive; firm, very sticky, very plastic; common medium prominent strong brown (7.5YR 4/6) masses of oxidized iron; very strongly acid.

BCg—55 to 64 inches; gray (5Y 5/1) clay loam; massive; firm, very sticky, very plastic; common medium prominent strong brown (7.5YR 4/6) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 60 to 90 inches or more
Reaction: Extremely acid to strongly acid throughout the profile, except where lime has been applied

A horizon:
Hue—10YR or 2.5Y; or neutral in hue and has value of 3 to 5
Value—3 to 5
Chroma—1 or 2
Texture—very fine sandy loam, loam, or silt loam

Ap horizon (where present):
Hue—10YR or 2.5Y; or neutral in hue and has value of 3 to 5
Value—3 to 5
Chroma—1 or 2
Texture—very fine sandy loam, loam, or silt loam

E horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—2 to 4
Texture—very fine sandy loam, loam, or silt loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Bt horizon:
Hue—10YR to 5Y
Value—5 or 6
Chroma—3 to 6
Texture—clay loam, silty clay loam, clay, or silty clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—1 or 2
Texture—clay loam, silty clay loam, clay, or silty clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BCg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—loam, silt loam, sandy clay loam, clay loam, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Cg horizon (where present):
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—fine sandy loam to clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Nimmo Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy alluvial sediments

Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Altavista soils, which are moderately well drained and have more clay in the subsoil than the Nimmo soil
- Dragston soils, which are somewhat poorly drained
- Tomotley soils, which have more clay in the subsoil than the Nimmo soil
- Seabrook soils, which have less clay than the Nimmo soils and are better drained

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Nimmo-Urban land complex, 0 to 2 percent slopes; located in an area of woodland, 30 yards south of the junction of Highways VA-600 and VA-106, about 225 yards south-southwest of the C&O Railroad; Roxbury, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 27 minutes 43.00 seconds N. and long. 77 degrees 8 minutes 32.00 seconds W.

A—0 to 4 inches; black (5Y 2/1) fine sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many fine roots; common fine and medium and few coarse tubular pores; very strongly acid; clear smooth boundary.

E1—4 to 10 inches; dark gray (5Y 4/1) sandy loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; common fine roots; common fine, medium, and coarse tubular pores; common fine prominent yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

E2—10 to 14 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; few fine, medium, and coarse roots; common fine, medium, and coarse tubular pores; very strongly acid; clear smooth boundary.

Btg—14 to 32 inches; gray (10YR 5/1) fine sandy loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few fine black mineral grains; few feldspar grains; common fine, medium, and coarse tubular pores; few faint clay films on all faces of peds and few faint clay bridges between sand grains; very strongly acid; gradual smooth boundary.

Cg1—32 to 40 inches; gray (10YR 6/1) sand; single grain; loose; discontinuous layers of sandy clay loam; common fine prominent yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Cg2—40 to 48 inches; gray (10YR 6/1) coarse sand; single grain; loose; few fine black mineral grains; 2 percent rounded quartz gravel; very strongly acid; clear smooth boundary.

Cg3—48 to 64 inches; gray (10YR 5/1) coarse sand; single grain; loose; strongly acid.

Range in Characteristics

Solum thickness: 25 to 45 inches
Reaction: Extremely acid to strongly acid throughout the profile, except where lime has been applied
Rock fragments: 0 to 3 percent in the A, E, and B horizons; 0 to 20 percent in the C horizons

A or Ap horizon:
Hue—10YR to 5Y
Value—2 to 5

Chroma—1 or 2
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—iron depletions in shades of olive and gray

Btg horizon (where present):
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2; dominantly 1
Texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon:
Hue—7.5YR to 2.5Y; or neutral in hue and has value of 3 to 8
Value—3 to 8
Chroma—1 or 2
Texture (fine-earth fraction)—coarse sand, sand, fine sand, loamy sand, or loamy fine sand; strata of finer textures in some pedons
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Peawick Series

Physiographic province: Coastal Plain
Landform: Stream terraces
Parent material: Clayey alluvial sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Low
Slope range: 0 to 3 percent

Associated Soils

- Chickahominy soils, which are poorly drained
- Dogue soils, which have less silt in the subsoil than the Peawick soils
- Newflat soils, which are somewhat poorly drained
- Tomotley soils, which have less clay than the Peawick soils and are poorly drained

Taxonomic Classification

Fine, mixed, active, thermic Aquic Paleudults

Typical Pedon

Peawick-Urban land complex, 0 to 3 percent slopes; located in an area of woodland, 1.2 miles south of the junction of Highways VA-5 and VA-623 on Highway VA-623, about 1.1 miles northeast of the junction of Highway VA-613 and VA-623, about 0.3 mile southwest of Highway VA-623 and Tomahund Creek; Brandon, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 16 minutes 32.00 seconds N. and long. 76 degrees 55 minutes 47.00 seconds W.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; friable, moderately sticky, moderately plastic; many fine and medium and few coarse roots; extremely acid; abrupt smooth boundary.

E—2 to 5 inches; light yellowish brown (10YR 6/4) silt loam; moderate medium granular structure; friable, moderately sticky, moderately plastic; many fine and medium and few coarse roots; extremely acid; clear smooth boundary.
Bt1—5 to 24 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium angular blocky and moderate fine and medium subangular blocky structure; firm, moderately sticky, moderately plastic; common fine and medium roots; common fine tubular pores; common distinct clay films on all faces of peds; common fine prominent strong brown (7.5YR 5/8) masses of oxidized iron; common fine mica flakes; extremely acid; clear smooth boundary.
Bt2—24 to 36 inches; yellowish brown (10YR 5/8) silty clay; strong fine and medium subangular and angular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; many distinct clay films on all faces of peds; common fine distinct strong brown (7.5YR 5/8) masses of oxidized iron and common fine prominent gray (10YR 6/1) iron depletions; common fine mica flakes; extremely acid; clear smooth boundary.
Btg1—36 to 58 inches; gray (10YR 6/1) clay; strong medium and coarse angular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; many prominent clay films on all faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses of oxidized iron; common fine mica flakes; extremely acid; gradual smooth boundary.
Btg2—58 to 64 inches; gray (10YR 6/1) clay; weak medium prismatic structure parting to strong medium and coarse angular blocky; very firm, very sticky, very plastic; few fine roots; many prominent clay films on all faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; few fine mica flakes; extremely acid.

Range in Characteristics

Solum thickness: 60 inches or more
Reaction: Extremely acid to strongly acid throughout the profile, except where lime has been applied
Rock fragments: 0 to 2 percent gravel throughout the profile
Mica flakes: None to common throughout the profile

A horizon:
Hue—10YR to 5Y
Value—2 to 4
Chroma—1 to 3
Texture—loam or silt loam

Ap horizon (where present):
Hue—10YR to 5Y
Value—2 to 6
Chroma—1 to 4
Texture—loam or silt loam

E horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 4
Texture—loam or silt loam

Bt horizon (upper part):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—clay loam, silty clay loam, clay, or silty clay

Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Bt horizon (lower part):
Hue—10YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—clay loam, silty clay loam, clay, or silty clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—clay loam, silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BCg horizon (where present):
Hue—10YR to 5Y; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—loam, silt loam, clay loam, silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon (where present):
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—fine sandy loam to clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Note: The soils mapped as Peawick in the survey area are taxadjuncts to the series because they do not have a clay decrease within 60 inches as established for the series. These differences do not affect the use and management of the soil.

Seabrook Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Sandy alluvial sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 2 percent

Associated Soils

- Dragston soils, which are somewhat poorly drained and have more clay in the subsoil than the Seabrook soils
- Munden soils, which are moderately well drained and have more clay in the subsoil than the Seabrook soils
- Tomotley soils, which are poorly drained and have more clay in the subsoil than the Seabrook soils

Taxonomic Classification

Mixed, thermic Aquic Udipsamments

Typical Pedon

Seabrook-Urban land complex, 0 to 2 percent slopes; located in a cultivated area, 0.3 mile east-northeast of the junction of Highways VA-600 and VA-622, about 0.4 mile west-northwest of where Highway VA-600 crosses the C&O Railroad, 175 yards south of the railroad, along a farm lane; Roxbury, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 28 minutes 6.00 seconds N. and long. 77 degrees 9 minutes 14.00 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; common fine and medium roots; many fine tubular pores; moderately acid; gradual smooth boundary.

C1—9 to 20 inches; light yellowish brown (10YR 6/4) loamy sand; single grain; loose; common fine and medium roots; many fine tubular pores; moderately acid; clear smooth boundary.

C2—20 to 26 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; common medium roots; common fine tubular pores; very strongly acid; clear smooth boundary.

C3—26 to 40 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; few fine and medium roots; few fine tubular pores; common medium prominent strong brown (7.5YR 5/6) masses of oxidized iron; common medium prominent light gray (10YR 7/2) iron depletions; few fine mica flakes; very strongly acid; clear smooth boundary.

C4—40 to 53 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; many medium prominent light gray (10YR 7/2) iron depletions; few fine mica flakes; very strongly acid; clear wavy boundary.

Cg—53 to 60 inches; light gray (10YR 7/1) loamy sand; single grain; loose; common coarse prominent yellowish brown (10YR 5/4) masses of oxidized iron; few fine mica flakes; 5 percent rounded quartz gravel; very strongly acid; clear wavy boundary.

C5—60 to 80 inches; strong brown (7.5YR 5/8) gravelly sand; single grain; loose; many coarse distinct reddish brown (5YR 4/4) masses of oxidized iron; few fine mica flakes; 25 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Sandy horizon thickness: 72 inches or more

Reaction: Extremely acid to slightly acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 35 percent gravel below 40 inches

Concretions: Less than 10 percent concretions and loamy bodies, as much as 2 inches in diameter, in any one horizon in some pedons

A horizon (where present):
- Hue—10YR or 2.5Y
- Value—3 to 5
- Chroma—2 to 4
- Texture—fine sand, loamy sand, or loamy fine sand

Ap horizon:
- Hue—10YR or 2.5Y
- Value—3 to 5
- Chroma—2 or 3
- Texture—fine sand, loamy sand, or loamy fine sand

C horizon (upper part):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—sand, fine sand, loamy coarse sand, loamy sand, or loamy fine sand
Redoximorphic features—masses of oxidized iron in shades of yellow, brown, and red and iron depletions in shades of gray, olive, and brown

C horizon (lower part):
Hue—10YR to 5Y
Value—5 to 7
Chroma—3 or 4
Texture (fine-earth fraction)—sand, fine sand, loamy coarse sand, loamy sand, or loamy fine sand
Redoximorphic features—masses of oxidized iron in shades of yellow, brown, and red and iron depletions in shades of gray, olive, and brown

Cg horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—sand, fine sand, loamy coarse sand, loamy sand, or loamy fine sand
Redoximorphic features—masses of oxidized iron in shades of yellow, brown, and red and iron depletions in shades of gray, olive, and brown

Slagle Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 6 percent

Associated Soils

- Bethera soils, which are poorly drained and have more clay in the subsoil than the Slagle soils
- Craven soils, which have more clay in the subsoil than the Slagle soils
- Nevarc soils, which have more clay in the subsoil than the Slagle soils
- Uchee soils, which have a thick, sandy surface layer and are better drained than the Slagle soils

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Aquic Hapludults

Typical Pedon

Slagle-Urban land complex, 0 to 2 percent slopes; located in a cultivated area, 0.4 mile north of the junction of Highways VA-604 and VA-605, about 1.4 miles northwest of the junction of Highway VA-659 and Virginia Division of Forestry fire trail 1557, about 70 yards south of a 90-degree curve to the west on Highway VA-604; Roxbury, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 24 minutes 44.00 seconds N. and long. 77 degrees 11 minutes 21.00 seconds W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable, slightly sticky, nonplastic; common fine roots; common fine and medium tubular pores; strongly acid; abrupt smooth boundary.

Bt1—10 to 25 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine and medium tubular pores; few distinct clay films on all faces of peds and few distinct clay bridges between sand grains; common medium distinct strong brown (7.5YR 5/6) and pale brown (10YR 6/3) masses of oxidized iron; strongly acid; gradual smooth boundary.

Bt2—25 to 44 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; few fine and medium tubular pores; many distinct clay bridges between sand grains and many distinct clay films on all faces of peds; many medium and coarse distinct strong brown (7.5YR 5/6) masses of oxidized iron; many medium and coarse distinct grayish brown (10YR 5/2) iron depletions; very strongly acid; gradual smooth boundary.

Bt3—44 to 63 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium and coarse subangular blocky and weak fine angular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; few fine and medium tubular pores; common distinct clay bridges between sand grains and common distinct clay films on all faces of peds; many medium and coarse distinct yellowish red (5YR 5/8) masses of oxidized iron; many medium and coarse distinct light brownish gray (10YR 6/2) and gray (10YR 6/1) iron depletions; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more

Reaction: Extremely acid to strongly acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 5 percent gravel throughout

A or Ap horizon:
- Hue—10YR or 2.5Y
- Value—2 to 6
- Chroma—1 to 4
- Texture—sandy loam, fine sandy loam, or loam

E horizon:
- Hue—10YR or 2.5Y
- Value—5 to 7
- Chroma—3 or 4
- Texture—sandy loam, fine sandy loam, or loam

BE horizon (where present):
- Hue—7.5YR to 2.5Y
- Value—5 or 6
- Chroma—3 to 6
- Texture—sandy loam, fine sandy loam, or loam

Bt horizon (upper part):
- Hue—7.5YR to 2.5Y
- Value—5 or 6
- Chroma—3 to 6
- Texture—fine sandy loam, loam, sandy clay loam, or clay loam
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Bt horizon (lower part):
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—3 to 8
Texture—fine sandy loam, loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon (where present):
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 or 2
Texture—loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

BC or BCg horizon (where present):
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 to 8
Texture—sandy loam, fine sandy loam, sandy clay loam, clay loam, sandy clay, or clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon (where present):
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 or 2
Texture—loamy sand to clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

State Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 3 percent

Associated Soils

- Bojac soils, which have less clay in the subsoil than the State soils
- Altavista soils, which are moderately well drained
- Munden soils, which are moderately well drained and have less clay in the subsoil than the State soils
- Augusta soils, which are somewhat poorly drained
- Nimmo soils, which are poorly drained and have less clay in the subsoil than the State soils
- Bethera and Chickahominy soils, which have more clay than the State soils and are poorly drained
- Newflat soils, which have more clay than the State soils and are somewhat poorly drained

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

State-Urban land complex, 0 to 3 percent slopes; located 0.8 mile southwest of the junction of Highways VA-35 and VA-647 at Sebrell, 1.3 miles south-southwest of the junction of Highways VA-653 and VA-719, 1.6 miles northeast of the junction of Highway VA-653 and the Nottoway River, in cropland; Sebrell, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 36 degrees 46 minutes 43.00 seconds N. and long. 77 degrees 8 minutes 19.00 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) fine sandy loam; weak fine and medium granular structure; friable, nonsticky, nonplastic; many fine and medium roots; many fine and medium high-continuity interstitial and tubular pores; few fine mica flakes; neutral; abrupt smooth boundary.

Bt1—10 to 14 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many fine and medium high-continuity interstitial and tubular pores; common distinct strong brown (7.5YR 4/6) clay films on all faces of peds; few fine mica flakes; moderately acid; clear wavy boundary.

Bt2—14 to 40 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine roots; many fine and medium moderate-continuity interstitial pores; common distinct clay films on all faces of peds; common fine mica flakes; strongly acid; gradual wavy boundary.

Bt3—40 to 50 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine roots between peds; few fine and medium high-continuity tubular pores; common distinct clay films on all faces of peds; common fine faint reddish yellow (7.5YR 6/8) masses of oxidized iron; common fine mica flakes; very strongly acid; clear wavy boundary.

BC—50 to 56 inches; yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium moderate-continuity interstitial pores; few distinct clay films on all faces of peds; common fine mica flakes; strongly acid; gradual wavy boundary.

C1—56 to 64 inches; yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) sandy loam; structureless massive; friable, nonsticky, nonplastic; common fine moderate-continuity interstitial pores; common fine mica flakes; strongly acid; clear wavy boundary.

C2—64 to 84 inches; yellow (2.5Y 7/6) sand; structureless single grain; loose, nonsticky, nonplastic; slightly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more

Soil reaction: Extremely acid to strongly acid in the A, E, BA, BE, and Bt horizons; extremely acid to slightly acid in the BC and C horizons

Rock fragments: 0 to 2 percent quartz gravel in the A, E, BA, BE, Bt, and BC horizons; 0 to 25 percent quartz gravel in the C horizon

Mica flakes: None to common

A or Ap horizon:

Hue—10YR or 2.5Y

Value—3 to 6

Chroma—2 to 6
Texture—loamy sand, sandy loam, fine sandy loam, or loam

E horizon (where present):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—3 to 6
Texture—loamy sand, sandy loam, fine sandy loam, or loam

BA or BE horizon (where present):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam or fine sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red in the lower part of the horizon and iron depletions in shades of brown, olive, and gray

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of brown, olive, and gray

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—2 to 8
Texture (fine-earth fraction)—sand, loamy sand, or sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of brown, olive, and gray

Suffolk Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 2 to 6 percent

Associated Soils

- Slagle soils, which are moderately well drained
- Nevarc soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soils
- Uchee soils, which have a thick, sandy surface layer

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Suffolk fine sandy loam, 2 to 6 percent slopes; located in a grassed area, 150 yards south of the football field at King William High School; Manquin, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 44 minutes 19.00 seconds N. and long. 77 degrees 7 minutes 58.00 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) fine sandy loam; weak medium granular structure; friable, nonsticky, nonplastic; common fine roots; many fine tubular pores; strongly acid; gradual smooth boundary.

BA—10 to 14 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable, nonsticky, nonplastic; common fine roots; many fine tubular pores; strongly acid; gradual smooth boundary.

Bt1—14 to 22 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, nonplastic; common fine and medium roots; common fine and medium tubular pores; few faint clay films on all faces of peds; extremely acid; gradual smooth boundary.

Bt2—22 to 38 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common fine tubular pores; few faint clay films on all faces of peds; very strongly acid; gradual smooth boundary.

BC—38 to 43 inches; strong brown (7.5YR 5/8) loamy sand; weak medium subangular blocky structure; friable, nonsticky, nonplastic; common fine roots; common distinct clay bridges between sand grains; very strongly acid; gradual irregular boundary.

C—43 to 65 inches; yellow (10YR 7/8) sand; single grain; loose; few coarse distinct reddish yellow (7.5YR 6/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 50 inches
Soil reaction: Extremely acid to moderately acid, except where lime has been applied
Rock fragments: 0 to 5 percent in the A, E, BA, BE, Bt, and BC horizons; 0 to 30 percent in the C horizon

A horizon (where present):
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—1 to 4
Texture—loamy sand, sandy loam, or fine sandy loam

Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—1 to 4
Texture—loamy sand, sandy loam, or fine sandy loam

E horizon (where present):
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—3 to 6
Texture—loamy sand, sandy loam, or fine sandy loam

BA or BE horizon:
Hue—7.5YR or 10YR
Value—5 to 7

Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

C horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—2 to 8
Texture (fine-earth fraction)—sand, fine sand, loamy sand, or loamy fine sand
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Tomotley Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy alluvial sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Altavista soils, which are moderately well drained
- Augusta soils, which are somewhat poorly drained
- Dragston soils, which are somewhat poorly drained and have less clay in the subsoil than the Tomotley soil
- Nimmo soils, which have less clay in the subsoil than the Tomotley soil
- Seabrook soils, which are moderately well drained and do not have a subsoil

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Tomotley-Urban land complex, 0 to 2 percent slopes; located in an area of woodland, 1.6 miles east of the junction of Highways VA-614 and VA-155, about 0.5 mile northeast of the junction of Highway VA-614 and Virginia Division of Forestry fire trail 1501; Providence Forge, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 24 minutes 26.00 seconds N. and long. 77 degrees 0 minutes 55.00 seconds W.

A—0 to 4 inches; dark gray (5Y 4/1) fine sandy loam; moderate medium granular structure; very friable, slightly sticky, slightly plastic; many fine and medium and common coarse roots; common fine and medium tubular pores; extremely acid; clear smooth boundary.

Eg—4 to 8 inches; dark grayish brown (2.5Y 4/2) fine sandy loam; weak fine granular structure; friable, moderately sticky, slightly plastic; common fine and medium and few coarse roots; common fine and medium and few coarse tubular pores; very strongly acid; clear smooth boundary.

Btg1—8 to 15 inches; gray (5Y 5/1) fine sandy loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine and few medium roots; common fine and medium tubular pores; common clay bridges between sand grains and many distinct clay films on all faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Btg2—15 to 38 inches; dark gray (5Y 4/1) sandy clay loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine and medium tubular pores; common clay bridges between sand grains and many distinct clay films on all faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Btg3—38 to 58 inches; gray (5Y 5/1) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common medium prominent light olive brown (2.5Y 5/6) masses of oxidized iron; very strongly acid; gradual smooth boundary.

BCg—58 to 65 inches; gray (N 6/0) fine sandy loam; structureless massive; friable, moderately sticky, slightly plastic; common medium prominent light olive brown (2.5Y 5/6) masses of oxidized iron; very strongly acid; clear smooth boundary.

Cg—65 to 75 inches; gray (5Y 5/1) loamy sand; structureless single grain; loose; extremely acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more

Reaction: Extremely acid to strongly acid in the upper part of the profile, except where lime has been applied; extremely acid to moderately acid in the lower part of the profile

Rock fragments: 0 to 5 percent gravel in the A, E, and B horizons

Mica flakes: Few or common in the lower part of the B horizon and in the C horizon in some pedons

Concretions: Fine black minerals in the lower part of the B horizon and in the C horizon in some pedons

A or Ap horizon:
- Hue—10YR to 5Y; or neutral in hue and has value of 2 to 4
- Value—2 to 4
- Chroma—1 or 2
- Texture—loamy sand, loamy fine sand, fine sandy loam, or loam

Eg horizon (where present):
- Hue—10YR or 2.5Y
- Value—4 to 7
- Chroma—1 or 2
- Texture—loamy sand, loamy fine sand, fine sandy loam, or loam
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red

Btg horizon:
- Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
- Value—4 to 7
- Chroma—1 or 2
- Texture—fine sandy loam, loam, sandy clay loam, or clay loam

Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BCg horizon:
Hue—10YR to 5Y; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—fine sandy loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon:
Hue—10YR to 5BG; or neutral in hue and has value of 4 to 7
Value—4 to 7
Chroma—1 or 2
Texture—sand to clay; pockets or strata of contrasting textures in some pedons
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Uchee Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 2 to 50 percent

Associated Soils

- Craven and Nevarc soils, which are moderately well drained, do not have thick, sandy surface layers, and have more clay in the upper subsoil than the Uchee soils
- Slagle soils, which are moderately well drained and do not have thick, sandy surface layers

Taxonomic Classification

Loamy, kaolinitic, thermic Arenic Kanhapludults

Typical Pedon

Uchee loamy fine sand, 2 to 6 percent slopes; located in an area of woodland, 1.0 mile west of the junction of Highways VA-618 and VA-602, about 200 yards south of Highway VA-602; Providence Forge, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 37 degrees 24 minutes 15.00 seconds N. and long. 77 degrees 7 minutes 13.00 seconds W.

A—0 to 4 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; few fine and medium roots; common fine and medium and few coarse tubular pores; very strongly acid; abrupt smooth boundary.

E—4 to 26 inches; light yellowish brown (10YR 6/4) loamy sand; structureless single grain; very friable, nonsticky, nonplastic; few fine roots; common fine and medium and few coarse tubular pores; very strongly acid; gradual smooth boundary.

BE—26 to 30 inches; brownish yellow (10YR 6/8) and light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; few fine and medium roots; common fine and medium and few coarse tubular pores;

few faint clay films on all faces of peds and common distinct clay bridges between sand grains; very strongly acid; clear smooth boundary.

Bt—30 to 50 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; few fine and medium tubular pores; common clay films on all faces of peds and many distinct clay bridges between sand grains; very strongly acid; clear smooth boundary.

C—50 to 62 inches; yellowish brown (10YR 5/8) sandy clay loam; massive; friable, moderately sticky, moderately plastic; few fine roots; compact in place; few fine tubular pores; common medium prominent yellowish red (5YR 5/6) and strong brown (7.5YR 5/6) masses of oxidized iron; common medium prominent gray (10YR 6/1) iron depletions; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches

Reaction: Very strongly acid or strongly acid throughout the profile, except where lime has been applied

Rock fragments: 0 to 15 percent gravel throughout the profile

A or Ap horizon:
- Hue—10YR
- Value—3 to 6
- Chroma—2 to 4
- Texture—sand or loamy sand

E horizon:
- Hue—10YR or 2.5Y
- Value—4 to 6
- Chroma—4 or 6
- Texture—sand or loamy sand

EB or BE horizon:
- Hue—7.5YR or 10YR
- Value—5 to 7
- Chroma—4 to 8
- Texture—loamy sand or sandy loam

Bt horizon (upper part):
- Hue—7.5YR or 10YR
- Value—5 to 7
- Chroma—4 to 8
- Texture—sandy loam or sandy clay loam
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Bt horizon (lower part):
- Hue—7.5YR or 10YR
- Value—5 to 7
- Chroma—4 to 8
- Texture—sandy clay loam, sandy clay, or clay
- Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

C horizon:
- Hue—2.5YR to 10YR
- Value—4 to 7
- Chroma—3 to 8

Texture—sandy loam or sandy clay loam; pockets or strata of clayey materials in some pedons
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Yemassee Series

Physiographic province: Coastal Plain
Landform: Uplands
Parent material: Loamy marine deposits
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Altavista soils, which are moderately well drained
- Slagle soils, which are moderately well drained
- Craven and Nevarc soils, which have more clay than the Yemassee soils and are better drained
- Uchee soils, which have a thick, sandy surface layer and are better drained than the Yemassee soils

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults

Typical Pedon

Yemassee-Urban land complex, 0 to 2 percent slopes; located 1.3 miles southeast of the junction of Highway VA-35 and the Sussex County line, 1.1 miles west-northwest of the junction of Highways VA-606 and VA-607, 0.9 mile east of the south junction of Highways VA-35 and VA-607, in woodland; Vicksville, VA, 7.5-minute USGS topographic quadrangle, NAD27; lat. 36 degrees 50 minutes 25.00 seconds N. and long. 77 degrees 6 minutes 51.00 seconds W.

A—0 to 4 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium granular structure; friable, slightly sticky, slightly plastic; many very fine and fine, common medium, and few coarse roots; common medium moderate-continuity tubular pores; very strongly acid; clear smooth boundary.
E—4 to 15 inches; pale brown (10YR 6/3) fine sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many very fine and fine and few medium and coarse roots; common medium moderate-continuity tubular pores; few medium prominent strong brown (7.5YR 5/8) and common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; clear smooth boundary.
Btg—15 to 40 inches; light brownish gray (10YR 6/2) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few very fine and fine roots; common fine and medium high-continuity tubular pores; common distinct continuous clay films on surfaces along root channels and common distinct continuous clay films on all faces of peds; common medium prominent strong brown (7.5YR 5/8) and common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; clear smooth boundary.
BCg—40 to 60 inches; gray (10YR 6/1) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine and fine roots; common very fine and fine moderate-continuity tubular pores; few faint patchy clay films on all faces of peds; few medium distinct yellowish brown (10YR 5/6), few

fine prominent red (10R 4/8), and common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 70 inches or more
Soil reaction: Extremely acid to slightly acid in the A and E horizons; extremely acid to strongly acid in the Bt, Btg, BCg, and Cg horizons

A or Ap horizon:
Hue—10YR or 2.5Y; or neutral in hue and has value of 2 to 5
Value—2 to 5
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—2 to 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Bt horizon (where present):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Btg horizon:
Hue—7.5YR to 2.5Y; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

BCg horizon:
Hue—10YR or 2.5Y; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—sandy loam, sandy clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Cg horizon (where present):
Hue—10YR to 5Y; or neutral in hue and has value of 5 to 7
Value—5 to 7
Chroma—1 or 2
Texture—sand to clay
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, and red and iron depletions in shades of olive and gray

Note: The soils mapped as Yemassee in the survey area are taxadjuncts to the series because the colors in the upper part of the pedon are not as bright and are less gray than what is established for the series.

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area. It also explains the major processes of soil horizon development.

Factors of Soil Formation

Soils are intimate mixtures of broken and partly or completely weathered rock, minerals, organic matter, plants and animals, water, and air. They occur as part of the natural landscape and differ from place to place. They differ in occurrence, in degree of development of various horizons, in mineral content, and in texture, color, and slope. The characteristics of the soils in any given area depend upon the interaction of the five factors of soil formation, which are parent material, climate, living organisms, topography, and time. Topography over time modifies the effect of climate and living organisms on parent material (Jenny, 1941).

Parent Material

Parent material is the unconsolidated material in which a soil forms. It is largely responsible for the chemical and mineral composition of soils. The two broad classes of parent material in the survey area are fluviomarine and alluvial materials.

Fluviomarine material is transported material that has been reworked by stream and marine action and forms the basis for the soils of the Coastal Plain. It consists of transported and reworked sands, silts, and clays that are gravelly to extremely gravelly in places. The material is layered and the texture changes abruptly in many places in vertical or horizontal directions. Soil formed from fluviomarine material is commonly strongly acid to very strongly acid and low in bases. The texture of the soil reflects the textures of the layers from which it was formed.

Alluvium is material transported by water and deposited as unconsolidated deposits of sand, silt, and clay. It forms the basis for soils on terraces and bottom lands of the Coastal Plain. Alluvial parent material is of local origin along the smaller streams and drainageways and is of both local and general origin along the James River. The materials are on flood plains and terraces. The alluvium has a mixed lithology because of the wide variety of igneous and metamorphic rocks and fluviomarine deposits found in the uplands. Total thickness of the alluvium ranges from several feet along the drainageways and small streams to several tens of feet along the James River. Alluvium along the drainageways and small streams is commonly medium- to coarse-textured. Along the James River, texture varies widely. They range from fine-textured slack water deposits to coarse-textured sand and gravel deposits. The soils that formed in alluvium are moderate in bases and moderately acid or strongly acid.

Climate

Climate affects the physical, chemical, and biological relationships in soils, primarily through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports mineral and organic residue through the

solum. Temperature determines the type of physical, chemical, and biological activity that takes place and the rate at which it occurs.

The survey area has a rather humid, temperate climate that is typical of most coastal or near-coastal areas of the Middle Atlantic States. The average annual rainfall is about 44.64 inches and the average air temperature is between 41 and 77 degrees F. Rainfall is well distributed throughout the year, but normally July and August are the months of highest rainfall.

The climate is fairly uniform throughout the cities, and there are no significant differences in elevation. Thus, there are no obstructions to the movement of winds, clouds, and rainstorms. Masses of air generally move through the county from the northwest, but they are warmed by air that moves in periodically from the south and southwest.

Because precipitation exceeds evapotranspiration, this humid, rather uniform climate has caused the soils to be strongly leached. Most of the soluble material that either was originally present or was released through weathering has been removed. Therefore, most of the soils are strongly acid and generally are low in plant nutrients.

Precipitation mainly is responsible for the subsoil that characterizes most soils in the survey area. In addition to leaching soluble material, water that percolates through the soil moves clay from the surface layer to a subsoil layer. Except for soils formed in recent alluvium or sand, soils of the survey area have a subsoil that contains more clay than the surface layer.

Also influenced by climate is the formation of blocky structure in the subsoil of well developed soils. The development of peds (aggregates) in the subsoil is caused by changes in volume of the soil mass. These changes are primarily the result of alternating wet and dry periods and of alternating freezing and thawing periods.

Weathering of minerals is at a rate proportional to temperature and the amount of moisture. Soil weathers more rapidly in tropical regions than in temperate regions and humid regions. In the Tidewater Cities Area, the soils are relatively low in weatherable minerals. They contain no free carbonates and most of the bases have been leached out. However, because many of the soils that formed in transported parent material had previously undergone one or more cycles of erosion, these materials may have been highly weathered and leached at the time they were deposited.

Living Organisms

Plants and animals are the main source of organic matter in soils. Organic matter decomposes and is incorporated into the soil by the action of micro-organisms and earthworms and, to a lesser degree, by windthrown trees and burrowing animals.

Before settlement by man, the native vegetation was most important in the complex of living organisms that affect soil development. The settlers found a dense forest that consisted mainly of hardwoods. Oaks were dominant in most parts of the area. Yellow-poplar, sweetgum, blackgum, holly, hickory, maple, dogwood, loblolly pine, and Virginia pine were also important, but there were probably few pure stands of pine before the area was settled. The fairly pure stands of pine that exist today generally are in areas that were once cleared and cultivated.

Most hardwoods use large amounts of calcium and other bases if they are available. Soils that are normally high in bases remain so under a cover of deciduous trees because, in large part, these bases are returned to the soil each year. When the leaves fall and decompose, the bases reenter the soil and are again used by plants.

The soils in the Tidewater Cities Area, however, have never been very high in bases; consequently, they are acid even under a cover of hardwoods. Soils that are strongly acid and low in fertility are better suited to pines than to most hardwoods. Pines do not require large amounts of calcium and other bases. Their needles do little to restore fertility to the soil.

As agriculture and urban growth developed in the area, humans became important factors in the development of the soils. The clearing of forests, cultivation in some areas, introduction of new kinds of crops and other plants, and improvements in drainage affected development of the soils and will continue to affect their development in the future.

The most important changes brought about by humans include mixing of the upper horizons of the soil to form a plow layer; tilling sloping soils, which resulted in accelerated erosion; and liming and fertilizing to change the content of plant nutrients, especially in the upper horizons.

Topography

Topography, or relief, affects the formation of soils by influencing the rate of infiltration, the rate of surface runoff, soil drainage, geologic erosion, and soil temperature. It can alter the effects of other soil-forming factors to the extent that several different kinds of soil can form from the same parent material. Differences in topography can cause the same parent material to weather at different rates, thus affecting the impact of plants and animals on soil formation.

The Tidewater Cities Area has a rolling topography that is moderately incised by the major drainage patterns. A wide area of river terrace is present along the lower part of the James River. Elevations in the area range from sea level along the James River and Chesapeake Bay to a height of about 85 feet in the western part of the survey area. Generally, the land surface slopes gently to the southeast at an average rate of 20 feet to the mile.

The survey area is drained by a number of short streams that empty into the James River and Chesapeake Bay. The drainage pattern is, in general, dendritic, but it is irregularly branched. The general fluvial cycle is in a stage of late youth or early maturity.

The cities generally consist of gently sloping to steep, intermediate to broad ridges and rises, which have slopes that range from 0 to 15 percent. The gently sloping areas have a medium rate of runoff and a good rate of water infiltration. The steep areas, which have slopes that range from 15 to 50 percent, commonly have rapid rates of runoff and a poor rate of water infiltration. The steeper soils have thinner subsoils than the less sloping soils.

Soils on marine terraces range from well drained to poorly drained and commonly are on slopes from 0 to 6 percent. Drainage is commonly related to both the texture and position of the alluvium on the landscape. Thus, soils developed from fine-textured slack water deposits in low positions are often poorly drained. Deposits of fine materials on the gently sloping high river terraces are typically moderately well drained or well drained. Layers of contrasting materials in the alluvium cause fluctuating water tables and often result in moderately well drained or somewhat poorly drained soils.

Time

Time is needed for changes to take place in the parent material. Because of other soil-forming factors, however, soils that formed in the same type of parent material and for the same amount of time may not be equally developed. Runoff and erosion, which hinder the development of well expressed soil horizons, are greater on the steeper slopes. Thus, soils on the steeper slopes generally are less developed than soils on the less steep slopes, even though they formed in the same parent material.

Soils that formed in weather-resistant parent material do not develop as rapidly as soils that form in parent material that is less resistant to weathering. Soils on flood plains commonly have weakly defined layers because they are subject to the constant deposition of sediment.

Processes of Soil Horizon Differentiation

Several processes are involved in the formation of soil horizons. Among these are the accumulation of organic matter, the leaching of soluble salts, the reduction and transfer of iron, the formation of soil structure, and the formation and translocation of clay minerals. These processes occur continually and simultaneously. They have been taking place for thousands of years.

Soils that have distinct subsoil horizons were leached of some of the lime and soluble salts before the clay minerals moved downward. Some of the factors that affect this leaching are the kinds of salts originally present, the depth to which the soil solution percolates, and the texture of the soil profile.

In the Tidewater Cities Area, well drained and moderately well drained soils have a red to yellowish brown subsoil. These colors are caused mainly by thin coatings of iron oxide on sand and silt grains, but in some soils the colors are inherited from the materials in which the soils formed. The structure in these soils is weak to strong subangular blocky, and the subsoil contains more clay than the surface layer.

The reduction and transfer of iron, called gleying, is associated mainly with wet, poorly drained soils. Moderately well drained and somewhat poorly drained soils have red, yellowish red, and yellowish brown iron and manganese accumulations and gray iron and manganese depletions. This indicates the segregation of iron or manganese, or both, due to a fluctuating water table. In poorly drained soils, the subsoil and underlying material are gray. This indicates the reduction and transfer of iron or manganese, or both, in solution (Vepraskas, 1992).

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. See Redoximorphic features.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Crusts, soil. Relatively thin, somewhat continuous layers of the soil surface that often restrict water movement, air entry, and seedling emergence from the soil. They generally are less than 2 inches thick and are massive.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Earthy fill. See Mine spoil.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flooding frequency class. Flooding frequency class is the number of times flooding occurs over a period of time and is expressed as a class. The classes of flooding are defined as follows:

None.—No reasonable possibility of flooding; near 0 percent chance of flooding in any year or less than 1 time in 500 years.

Very Rare.—Flooding is very unlikely but possible under extremely unusual weather conditions; less than 1 percent chance of flooding in any year or less than 1 time in 100 years but at least 1 time in 500 years.

Rare.—Flooding unlikely but possible under unusual weather conditions; 1 to 5 percent chance of flooding in any year or nearly 1 to 5 times in 100 years.

Occasional.—Flooding is expected infrequently under usual weather conditions; 5 to 50 percent chance of flooding in any year or >5 to 50 times in 100 years.

Frequent.—Flooding is likely to occur often under usual weather conditions; more than a 50 percent chance of flooding in any year or more than 50 times in 100 years, but less than a 50 percent chance of flooding in all months in any year.

Very Frequent.—Flooding is likely to occur very often under usual weather conditions; more than a 50 percent chance of flooding in all months of any year.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms. A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops.

Ksat. See Saturated hydraulic conductivity.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and

type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Masses. See Redoximorphic features.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent

High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.
Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)
Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.
Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
Permafrost. Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.
pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
Plastic limit. The moisture content at which a soil changes from semisolid to plastic.
Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
Pore linings. See Redoximorphic features.
Potential native plant community. See Climax plant community.
Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.
Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.
Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.
Redoximorphic depletions. See Redoximorphic features.
Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be

removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturated hydraulic conductivity (Ksat). The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy?s Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as ?Ksat.? Terms describing saturated hydraulic conductivity are *very high*, 100 or more micrometers per second (14.17 or more inches per hour); *high*, 10 to 100 micrometers per second (1.417 to 14.17 inches per hour); *moderately high*, 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour); *moderately low*, 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour); *low*, 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour); and *very low*, less than 0.01 micrometer per second (less than 0.001417 inch per hour). To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune. A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow refill (in tables). The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement (in tables). Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff

so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1971-2000 at Langley Air Force Base, Virginia)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	47.4	32.0	39.7	73	9	116	4.08	2.65	5.56	7	2.5
February----	50.4	34.0	42.2	77	16	143	3.58	1.96	5.06	6	2.3
March-------	57.8	40.6	49.2	83	22	303	4.72	2.84	6.40	6	0.5
April-------	67.0	48.5	57.7	88	32	531	3.30	1.60	5.04	6	0.2
May---------	74.4	58.0	66.2	92	43	812	4.10	2.77	5.35	7	0.0
June--------	82.4	66.8	74.6	96	51	1038	3.44	1.59	5.03	5	0.0
July--------	87.0	71.9	79.4	98	60	1223	4.81	2.55	6.99	7	0.0
August------	85.1	70.7	77.9	98	58	1175	4.57	2.05	6.91	5	0.0
September---	79.1	65.0	72.0	94	49	960	4.92	1.60	7.32	5	0.0
October-----	69.2	52.7	60.9	87	36	648	3.15	1.71	4.56	4	0.0
November----	60.4	43.6	52.0	80	25	369	3.35	1.68	4.72	5	0.1
December----	52.0	36.1	44.0	75	16	188	3.43	1.68	5.11	6	0.5
Yearly:											
Average---	67.7	51.6	59.7	---	---	---	---	---	---	---	---
Extreme---	105	-3	---	99	7	---	---	---	---	---	---
Total-----	---	---	---	---	---	7506	47.44	35.51	54.53	69	6.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Langley Air Force Base, Virginia)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 20	Mar. 25	Apr. 9
2 year in 10 later than--	Mar. 10	Mar. 20	Apr. 4
5 year in 10 later than--	Feb. 19	Mar. 9	Mar. 25
First freezing temperature in fall:			
1 yr in 10 earlier than--	Nov. 30	Nov. 10	Nov. 5
2 yr in 10 earlier than--	Dec. 7	Nov. 19	Nov. 10
5 yr in 10 earlier than--	Dec. 21	Dec. 5	Nov. 20

Table 3.—Growing Season

(Recorded for the period 1971-2000 at Langley Air Force Base, Virginia)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	266	240	225
8 years in 10	281	251	231
5 years in 10	308	272	241
2 years in 10	335	293	251
1 year in 10	349	304	256

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1	Altavista-Urban land complex, 0 to 3 percent slopes	14,415	7.1
2	Augusta-Urban land complex, 0 to 2 percent slopes	8,370	4.1
3	Axis very fine sandy loam, 0 to 2 percent slopes, very frequently flooded	5,292	2.6
4	Beaches	192	*
5	Bethera-Urban land complex, 0 to 2 percent slopes	1,999	1.0
6	Bohicket muck, 0 to 1 percent slopes, very frequently flooded	3,312	1.6
7	Bojac-Urban land complex, 0 to 3 percent slopes	361	0.2
8	Chickahominy-Urban land complex, 0 to 2 percent slopes	8,367	4.1
9A	Craven-Urban land complex, 0 to 2 percent slopes	4,769	2.3
9B	Craven-Urban land complex, 2 to 6 percent slopes	1,009	0.5
10	Dragston-Urban land complex, 0 to 2 percent slopes	971	0.5
11	Duckston fine sand, 0 to 2 percent slopes, frequently flooded	504	0.2
12	Johnston silt loam, 0 to 2 percent slopes, frequently flooded	727	0.4
13	Lawnes loam, 0 to 1 percent slopes, very frequently flooded	780	0.4
14	Levy silty clay, 0 to 2 percent slopes, very frequently flooded	9	*
15	Munden-Urban land complex, 0 to 3 percent slopes	1,074	0.5
16C	Nevarc-Uchee complex, 6 to 15 percent slopes	379	0.2
16D	Nevarc-Uchee complex, 15 to 50 percent slopes	1,993	1.0
17	Newflat-Urban land complex, 0 to 2 percent slopes	1,341	0.7
18	Nimmo-Urban land complex, 0 to 2 percent slopes	2,748	1.4
19	Peawick-Urban land complex, 0 to 3 percent slopes	341	0.2
20	Seabrook-Urban land complex, 0 to 2 percent slopes	949	0.5
21A	Slagle-Urban land complex, 0 to 2 percent slopes	2,443	1.2
21B	Slagle-Urban land complex, 2 to 6 percent slopes	1,442	0.7
22	State-Urban land complex, 0 to 3 percent slopes	4,158	2.0
23	Suffolk fine sandy loam, 2 to 6 percent slopes	18	*
24	Tomotley-Urban land complex, 0 to 2 percent slopes	21,665	10.6
25	Uchee loamy fine sand, 2 to 6 percent slopes	117	*
26	Udorthents-Dumps complex	16,151	7.9
27	Urban land	13,586	6.7
28	Yemassee-Urban land complex, 0 to 2 percent slopes	468	0.2
DAM	Dam	5	*
W	Water	83,545	41.1
	Total	203,500	100.0

* Less than 0.1 percent.

Table 5.—Land Capability, Virginia Soil Management Group, and Nonirrigated Yields

Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.

Map symbol and soil name	Land capability	Virginia Soil Management Group	Pasture
			AUM
1:			
Altavista	2w	B	11.5
Urban land	8s		---
2:			
Augusta	4w	Z	5.0
Urban land	8s		---
3:			
Axis	7w	PP	---
4:			
Beaches	8w		---
5:			
Bethera	6w	OO	---
Urban land	8s		---
6:			
Bohicket	8w	PP	---
7:			
Bojac	2s	DD	6.0
Urban land	8s		---
8:			
Chickahominy	4w	LL	3.0
Urban land	8s		---
9A:			
Craven	2w	HH	6.0
Urban land	8s		---
9B:			
Craven	2e	HH	6.0
Urban land	8s		---
10:			
Dragston	4w	E	6.0
Urban land	8s		---
11:			
Duckston	7w	QQ	---
12:			
Johnston	7w	PP	---

Table 5.—Land Capability, Virginia Soil Management Group, and Nonirrigated Yields—Continued

Map symbol and soil name	Land capability	Virginia Soil Management Group	Pasture
			AUM
13:			
Lawnes	7w	PP	---
14:			
Levy	7w	PP	---
15:			
Munden	2w	F	7.0
Urban land	8s		---
16C:			
Nevarc	4e	HH	5.5
Uchee	4s	DD	5.5
16D:			
Nevarc	7e	HH	4.0
Uchee	6e	DD	4.0
17:			
Newflat	4w	LL	5.0
Urban land	8s		---
18:			
Nimmo	4w	E	3.0
Urban land	8s		---
19:			
Peawick	2w	HH	7.0
Urban land	8s		---
20:			
Seabrook	3s	EE	4.0
Urban land	8s		---
21A:			
Slagle	2e	K	7.5
Urban land	8s		---
21B:			
Slagle	2e	K	7.5
Urban land	8s		---
22:			
State	1	B	10.0
Urban land	8s		---
23:			
Suffolk	2e	T	7.0

Table 5.—Land Capability, Virginia Soil Management Group, and Nonirrigated Yields—Continued

Map symbol and soil name	Land capability	Virginia Soil Management Group	Pasture
			AUM
24:			
Tomotley	4w	OO	5.0
Urban land	8s		---
25:			
Uchee	2s	DD	6.0
26:			
Udorthents	---		---
Dumps	8s		---
27:			
Urban land	8s		---
28:			
Yemassee	4w	OO	2.5
Urban land	8s		---
DAM:			
Dam	8s		---

Table 6.—Prime Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Map unit name	Farmland Classification
23	Suffolk fine sandy loam, 2 to 6 percent slopes	Prime farmland in all areas

Table 7.—Hydric Soils List

Map symbol	Soil name
3	Axis very fine sandy loam, 0 to 2 percent slopes, very frequently flooded
5	Bethera-Urban land complex, 0 to 2 percent slopes
6	Bohicket muck, 0 to 1 percent slopes, very frequently flooded
8	Chickahominy-Urban land complex, 0 to 2 percent slopes
11	Duckston fine sand, 0 to 2 percent slopes, frequently flooded
12	Johnston silt loam, 0 to 2 percent slopes, frequently flooded
13	Lawnes loam, 0 to 1 percent slopes, very frequently flooded
14	Levy silty clay, 0 to 2 percent slopes, very frequently flooded
18	Nimmo-Urban land complex, 0 to 2 percent slopes
24	Tomotley-Urban land complex, 0 to 2 percent slopes

Table 8.—Forestland Productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
1:				
Altavista	loblolly pine	91	129	loblolly pine
	longleaf pine	87	114	
	southern red oak	77	52	
	white oak	77	57	
Urban land	---	---	---	---
2:				
Augusta	American sycamore	90	100	American sycamore, cherrybark oak, loblolly pine, sweetgum, yellow-poplar
	loblolly pine	90	129	
	southern red oak	80	57	
	sweetgum	90	100	
	white oak	70	57	
Urban land	---	---	---	---
3:				
Axis	---	---	---	---
4:				
Beaches	---	---	---	---
5:				
Bethera	sweetgum	95	114	sweetgum
Urban land	---	---	---	---
6:				
Bohicket	---	---	---	---
7:				
Bojac	loblolly pine	80	114	loblolly pine, sweetgum
	southern red oak	70	57	
	sweetgum	80	86	
	Virginia pine	75	114	
Urban land	---	---	---	---
8:				
Chickahominy	loblolly pine	88	129	loblolly pine, sweetgum
	sweetgum	95	114	
Urban land	---	---	---	---
9A, 9B:				
Craven	loblolly pine	88	129	loblolly pine
	southern red oak	90	72	
	white oak	90	72	
	willow oak	85	86	
Urban land	---	---	---	---
10:				
Dragston	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	80	57	
	sweetgum	90	100	
	yellow-poplar	90	86	
Urban land	---	---	---	---

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
11:				
Duckston	---	---	---	---
12:				
Johnston	sweetgum	94	114	baldcypress, green ash, loblolly pine, sweetgum
	water oak	103	100	
13:				
Lawnes	---	---	---	---
14:				
Levy	---	---	---	baldcypress, sweetgum
15:				
Munden	loblolly pine	90	129	loblolly pine
	southern red oak	76	72	
	sweetgum	90	100	
	white oak	76	57	
Urban land	---	---	---	---
16C, 16D:				
Nevarc	loblolly pine	77	100	loblolly pine
	southern red oak	70	57	
	sweetgum	76	72	
	white oak	70	57	
	yellow-poplar	80	72	
Uchee	loblolly pine	80	114	loblolly pine, longleaf pine
	longleaf pine	67	72	
	southern red oak	80	72	
17:				
Newflat	loblolly pine	90	129	loblolly pine, sweetgum
	southern red oak	70	57	
	sweetgum	95	114	
Urban land	---	---	---	---
18:				
Nimmo	loblolly pine	95	143	loblolly pine, sweetgum
	sweetgum	95	114	
	water oak	80	72	
	white oak	80	57	
Urban land	---	---	---	---
19:				
Peawick	loblolly pine	77	100	loblolly pine
	southern red oak	73	72	
Urban land	---	---	---	---
20:				
Seabrook	loblolly pine	81	114	loblolly pine, longleaf pine
	southern red oak	75	62	
Urban land	---	---	---	---

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
21A, 21B:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	62	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
Urban land	---	---	---	---
22:				
State	loblolly pine	86	129	loblolly pine, yellow-poplar
	southern red oak	85	72	
	yellow-poplar	100	114	
Urban land	---	---	---	---
23:				
Suffolk	loblolly pine	82	114	loblolly pine
	shortleaf pine	72	114	
	southern red oak	70	57	
24:				
Tomotley	loblolly pine	97	143	loblolly pine
	water oak	78	72	
	willow oak	86	86	
Urban land	---	---	---	---
25:				
Uchee	loblolly pine	80	114	loblolly pine, longleaf pine
	longleaf pine	67	72	
	southern red oak	80	72	
26:				
Udorthents	---	---	---	---
Dumps	---	---	---	---
27:				
Urban land	---	---	---	---
28:				
Yemassee	loblolly pine	90	129	American sycamore, loblolly pine, slash pine, yellow-poplar
	longleaf pine	80	100	
	slash pine	88	157	
	sweetgum	95	114	
Urban land	---	---	---	---
DAM:				
Dam	---	---	---	---

Table 9a.—Forestland Management (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Slight		Moderately suited		Moderate	
			Wetness	0.50	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Wetness	1.00	Flooding	1.00	Wetness	0.50
	Low strength	0.50	Wetness	1.00		
4:						
Beaches	Not rated		Not rated		Not rated	
5:						
Bethera	Moderate		Poorly suited		Severe	
	Low strength	0.50	Wetness	1.00	Low strength	1.00
			Ponding	0.50		
			Low strength	0.50		
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Low strength	1.00	Flooding	1.00	Wetness	0.50
	Wetness	1.00	Low strength	1.00		
7:						
Bojac	Slight		Well suited		Moderate	
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Moderate		Poorly suited		Severe	
	Low strength	0.50	Wetness	1.00	Low strength	1.00
			Low strength	0.50		
Urban land	Not rated		Not rated		Not rated	
9A, 9B:						
Craven	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
Urban land	Not rated		Not rated		Not rated	

Table 9a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:						
Dragston	Moderate		Moderately suited		Moderate	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Severe		Poorly suited		Moderate	
	Flooding	1.00	Flooding	1.00	Wetness	0.50
	Wetness	1.00	Wetness	1.00	Low strength	0.50
12:						
Johnston	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Low strength	0.50	Flooding	1.00		
			Wetness	1.00		
13:						
Lawnes	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Wetness	1.00	Flooding	1.00	Wetness	0.50
	Low strength	0.50	Wetness	1.00		
14:						
Levy	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Wetness	1.00	Flooding	1.00	Wetness	0.50
	Low strength	0.50	Wetness	1.00		
15:						
Munden	Slight		Well suited		Moderate	
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
16C:						
Nevarc	Slight		Moderately suited		Moderate	
			Slope	0.50	Low strength	0.50
Uchee	Slight		Moderately suited		Moderate	
			Slope	0.50	Low strength	0.50
16D:						
Nevarc	Severe		Poorly suited		Moderate	
	Slope	1.00	Slope	1.00	Low strength	0.50
	Low strength	0.50				
Uchee	Moderate		Poorly suited		Moderate	
	Slope	0.50	Slope	1.00	Low strength	0.50
17:						
Newflat	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
Urban land	Not rated		Not rated		Not rated	

Table 9a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18:						
Nimmo	Slight		Poorly suited Wetness	1.00	Moderate Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Moderate Low strength	0.50	Moderately suited Low strength	0.50	Severe Low strength	1.00
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Slight		Well suited		Moderate Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
21A, 21B:						
Slagle	Moderate Low strength	0.50	Moderately suited Low strength	0.50	Severe Low strength	1.00
Urban land	Not rated		Not rated		Not rated	
22:						
State	Slight		Well suited		Moderate Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Slight		Well suited		Moderate Low strength	0.50
24:						
Tomotley	Slight		Poorly suited Wetness	1.00	Moderate Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Slight		Well suited		Moderate Low strength	0.50
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Slight		Well suited		Moderate Low strength	0.50
Urban land	Not rated		Not rated		Not rated	

Table 9a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 9b.—Forestland Management (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Slight		Slight		Moderately suited	
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Slight		Slight		Moderately suited	
					Wetness	0.50
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Wetness	1.00
4:						
Beaches	Not rated		Not rated		Not rated	
5:						
Bethera	Slight		Slight		Poorly suited	
					Wetness	1.00
					Ponding	0.50
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Low strength	1.00
7:						
Bojac	Slight		Slight		Well suited	
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Slight		Slight		Poorly suited	
					Wetness	1.00
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
9A:						
Craven	Slight		Slight		Moderately suited	
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	

Table 9b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9B:						
Craven	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Slight		Slight		Moderately suited	
					Wetness	0.50
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Slight		Slight		Poorly suited	
					Flooding	1.00
					Wetness	1.00
12:						
Johnston	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Wetness	1.00
13:						
Lawnes	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Wetness	1.00
14:						
Levy	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Wetness	1.00
15:						
Munden	Slight		Slight		Well suited	
Urban land	Not rated		Not rated		Not rated	
16C:						
Nevarc	Slight		Severe		Moderately suited	
			Slope/erodibility	0.95	Slope	0.50
Uchee	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Slope	0.50
16D:						
Nevarc	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Uchee	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
17:						
Newflat	Slight		Slight		Moderately suited	
					Wetness	0.50
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	

Table 9b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18:						
Nimmo	Slight		Slight		Poorly suited Wetness	1.00
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Slight		Slight		Moderately suited Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Slight		Slight		Well suited	
Urban land	Not rated		Not rated		Not rated	
21A, 21B:						
Slagle	Slight		Moderate Slope/erodibility	0.50	Moderately suited Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
22:						
State	Slight		Slight		Well suited	
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Slight		Slight		Well suited	
24:						
Tomotley	Slight		Slight		Poorly suited Wetness	1.00
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Slight		Slight		Well suited	
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Slight		Slight		Well suited	
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 9c.—Forestland Management (Part 3)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Well suited		Well suited		Moderately suited	
					Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
					Low strength	0.50
4:						
Beaches	Not rated		Not rated		Not rated	
5:						
Bethera	Moderately suited		Moderately suited		Moderately suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Low strength	1.00
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Wetness	1.00
7:						
Bojac	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Poorly suited		Poorly suited		Moderately suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
9A, 9B:						
Craven	Poorly suited		Poorly suited		Moderately suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	

Table 9c.—Forestland Management (Part 3)—Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11:						
Duckston	Moderately suited		Poorly suited		Poorly suited	
	Wetness	0.50	Wetness	0.75	Wetness	1.00
12:						
Johnston	Well suited		Well suited		Moderately suited	
					Low strength	0.50
13:						
Lawnes	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
					Low strength	0.50
					Stickiness; high plasticity index	0.50
14:						
Levy	Poorly suited		Poorly suited		Poorly suited	
	Wetness	0.75	Wetness	0.75	Wetness	1.00
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
					Stickiness; high plasticity index	0.50
15:						
Munden	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
16C:						
Nevarc	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
			Slope	0.50		
Uchee	Well suited		Moderately suited		Well suited	
			Slope	0.50		
16D:						
Nevarc	Poorly suited		Unsuited		Moderately suited	
	Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
			Stickiness; high plasticity index	0.75		
Uchee	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Slope	0.50
17:						
Newflat	Poorly suited		Poorly suited		Moderately suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	

Table 9c.—Forestland Management (Part 3)—Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19:						
Peawick	Poorly suited Stickiness; high plasticity index	0.75	Poorly suited Stickiness; high plasticity index	0.75	Moderately suited Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
21A:						
Slagle	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
21B:						
Slagle	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Low strength	0.50
Urban land	Not rated		Not rated		Not rated	
22:						
State	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Well suited		Well suited		Well suited	
24:						
Tomotley	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Well suited		Well suited		Well suited	
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Well suited		Well suited		Well suited	
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 9d.—Forestland Management (Part 4)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Altavista	Well suited		Well suited	
Urban land	Not rated		Not rated	
2:				
Augusta	Well suited		Well suited	
Urban land	Not rated		Not rated	
3:				
Axis	Poorly suited Wetness	0.75	Unsuited Wetness	1.00
4:				
Beaches	Not rated		Not rated	
5:				
Bethera	Well suited		Well suited	
Urban land	Not rated		Not rated	
6:				
Bohicket	Poorly suited Wetness	0.75	Unsuited Wetness	1.00
7:				
Bojac	Well suited		Well suited	
Urban land	Not rated		Not rated	
8:				
Chickahominy	Poorly suited Stickiness; high plasticity index	0.50	Well suited	
Urban land	Not rated		Not rated	
9A, 9B:				
Craven	Poorly suited Stickiness; high plasticity index	0.50	Well suited	
Urban land	Not rated		Not rated	
10:				
Dragston	Well suited		Well suited	
Urban land	Not rated		Not rated	
11:				
Duckston	Poorly suited Wetness	0.50	Unsuited Wetness	1.00

Table 9d.—Forestland Management (Part 4)—Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
	Rating class and limiting features	Value	Rating class and limiting features	Value
12:				
Johnston	Well suited		Well suited	
13:				
Lawnes	Poorly suited		Unsuited	
	Wetness	0.75	Wetness	1.00
14:				
Levy	Poorly suited		Unsuited	
	Wetness	0.75	Wetness	1.00
	Stickiness; high plasticity index	0.50		
15:				
Munden	Well suited		Well suited	
Urban land	Not rated		Not rated	
16C:				
Nevarc	Poorly suited		Well suited	
	Stickiness; high plasticity index	0.50		
Uchee	Well suited		Well suited	
16D:				
Nevarc	Poorly suited		Poorly suited	
	Slope	0.50	Slope	0.50
	Stickiness; high plasticity index	0.50		
Uchee	Poorly suited		Poorly suited	
	Slope	0.50	Slope	0.50
17:				
Newflat	Poorly suited		Well suited	
	Stickiness; high plasticity index	0.50		
Urban land	Not rated		Not rated	
18:				
Nimmo	Well suited		Well suited	
Urban land	Not rated		Not rated	
19:				
Peawick	Poorly suited		Well suited	
	Stickiness; high plasticity index	0.50		
Urban land	Not rated		Not rated	
20:				
Seabrook	Well suited		Well suited	
Urban land	Not rated		Not rated	

Table 9d.—Forestland Management (Part 4)—Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
	Rating class and limiting features	Value	Rating class and limiting features	Value
21A, 21B:				
Slagle	Well suited		Well suited	
Urban land	Not rated		Not rated	
22:				
State	Well suited		Well suited	
Urban land	Not rated		Not rated	
23:				
Suffolk	Well suited		Well suited	
24:				
Tomotley	Well suited		Well suited	
Urban land	Not rated		Not rated	
25:				
Uchee	Well suited		Well suited	
26:				
Udorthents	Not rated		Not rated	
Dumps	Not rated		Not rated	
27:				
Urban land	Not rated		Not rated	
28:				
Yemassee	Well suited		Well suited	
Urban land	Not rated		Not rated	
DAM:				
Dam	Not rated		Not rated	

Table 9e.—Forestland Management (Part 5)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential for damage to soil by fire		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Altavista	Moderate		Low	
	Texture/rock fragments	0.50		
Urban land	Not rated		Not rated	
2:				
Augusta	Moderate		Low	
	Texture/rock fragments	0.50		
Urban land	Not rated		Not rated	
3:				
Axis	Low		High	
	Texture/rock fragments	0.10	Wetness	1.00
			Salinity	1.00
4:				
Beaches	Not rated		Not rated	
5:				
Bethera	Low		High	
	Texture/rock fragments	0.10	Wetness	1.00
			Soil reaction	0.50
Urban land	Not rated		Not rated	
6:				
Bohicket	Moderate		High	
	Texture/surface depth/rock fragments	0.50	Wetness	1.00
			Salinity	1.00
	Texture/rock fragments	0.10		
7:				
Bojac	Moderate		Low	
	Texture/rock fragments	0.50		
Urban land	Not rated		Not rated	
8:				
Chickahominy	Moderate		High	
	Texture/rock fragments	0.50	Wetness	1.00
			Soil reaction	0.50
Urban land	Not rated		Not rated	

Table 9e.—Forestland Management (Part 5)—Continued

Map symbol and soil name	Potential for damage to soil by fire		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value
9A, 9B:				
Craven	Moderate Texture/rock fragments	0.50	Low	
Urban land	Not rated		Not rated	
10:				
Dragston	High Texture/surface depth/rock fragments	1.00	Low	
Urban land	Not rated		Not rated	
11:				
Duckston	High Texture/surface depth/rock fragments	1.00	High Wetness Available water	1.00 0.50
12:				
Johnston	Low Texture/rock fragments	0.10	High Wetness	1.00
13:				
Lawnes	Low Texture/rock fragments	0.10	High Wetness Salinity	1.00 0.50
14:				
Levy	Low Texture/rock fragments	0.10	High Wetness Soil reaction	1.00 0.50
15:				
Munden	Moderate Texture/rock fragments	0.50	Low	
Urban land	Not rated		Not rated	
16C, 16D:				
Nevarc	Moderate Texture/rock fragments	0.50	Moderate Soil reaction	0.50
Uchee	High Texture/surface depth/rock fragments	1.00	Low	
17:				
Newflat	Moderate Texture/rock fragments	0.50	High Wetness	1.00
Urban land	Not rated		Not rated	

Table 9e.—Forestland Management (Part 5)—Continued

Map symbol and soil name	Potential for damage to soil by fire		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value
18:				
Nimmo	Moderate Texture/rock fragments	0.50	High Wetness	1.00
Urban land	Not rated		Not rated	
19:				
Peawick	Moderate Texture/rock fragments	0.50	Moderate Soil reaction	0.50
Urban land	Not rated		Not rated	
20:				
Seabrook	High Texture/rock fragments	1.00	Low	
Urban land	Not rated		Not rated	
21A, 21B:				
Slagle	Moderate Texture/rock fragments	0.50	Low	
Urban land	Not rated		Not rated	
22:				
State	Moderate Texture/rock fragments	0.50	Low	
Urban land	Not rated		Not rated	
23:				
Suffolk	Moderate Texture/rock fragments	0.50	Low	
24:				
Tomotley	Low Texture/surface depth/rock fragments	0.10	High Wetness Soil reaction	1.00 0.50
Urban land	Not rated		Not rated	
25:				
Uchee	High Texture/surface depth/rock fragments	1.00	Low	
26:				
Udorthents	Not rated		Not rated	
Dumps	Not rated		Not rated	

Table 9e.—Forestland Management (Part 5)—Continued

Map symbol and soil name	Potential for damage to soil by fire		Potential for seedling mortality	
	Rating class and limiting features	Value	Rating class and limiting features	Value
27:				
Urban land	Not rated		Not rated	
28:				
Yemassee	Low Texture/rock fragments	0.10	Moderate Wetness	0.50
Urban land	Not rated		Not rated	
DAM:				
Dam	Not rated		Not rated	

Table 10a.—Recreation (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Somewhat limited Depth to saturated zone	0.39	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Somewhat limited Depth to saturated zone	0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Very limited Depth to saturated zone Sodium content Flooding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Sodium content	1.00 1.00 1.00	Very limited Depth to saturated zone Sodium content Flooding	1.00 1.00 1.00
4:						
Beaches	Very limited Flooding Too sandy Salinity	1.00 1.00 1.00	Very limited Too sandy Salinity Flooding	1.00 1.00 0.40	Very limited Too sandy Flooding Salinity	1.00 1.00 1.00
5:						
Bethera	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.60
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Very limited Depth to saturated zone Sodium content Salinity	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Sodium content	1.00 1.00 1.00	Very limited Depth to saturated zone Sodium content Salinity	1.00 1.00 1.00
7:						
Bojac	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00

Table 10a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
9A:						
Craven	Somewhat limited		Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
Urban land	Not rated		Not rated		Not rated	
9B:						
Craven	Somewhat limited		Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
					Slope	0.50
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.81	Depth to saturated zone	0.48	Depth to saturated zone	0.81
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Flooding	0.40	Flooding	1.00
12:						
Johnston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Ponding	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
13:						
Lawnes	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Organic matter content	1.00
	Ponding	1.00	Organic matter content	1.00	Flooding	1.00
14:						
Levy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Sodium content	1.00	Ponding	1.00
15:						
Munden	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	

Table 10a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16C:						
Nevarc	Somewhat limited		Somewhat limited		Very limited	
	Slow water movement	0.94	Slow water movement	0.94	Slope	1.00
	Depth to saturated zone	0.39	Slope	0.37	Slow water movement	0.94
	Slope	0.37	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Uchee	Somewhat limited		Somewhat limited		Very limited	
	Too sandy	0.84	Too sandy	0.84	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	0.84
16D:						
Nevarc	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Uchee	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
17:						
Newflat	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Depth to saturated zone	0.99	Slow water movement	1.00
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Very limited		Very limited		Very limited	
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.81	Too sandy	0.81	Too sandy	0.81
Urban land	Not rated		Not rated		Not rated	

Table 10a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21A, 21B:						
Slagle	Somewhat limited		Somewhat limited		Somewhat limited	
	Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
					Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
22:						
State	Very limited		Not limited		Not limited	
	Flooding	1.00				
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.07	Too sandy	0.07	Slope	0.50
					Too sandy	0.07
24:						
Tomotley	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
					Slope	0.50
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 10b.—Recreation (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.19
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.60	Flooding	0.60	Sodium content	1.00
4:						
Beaches	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Droughty	1.00
					Salinity	1.00
5:						
Bethera	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.60	Flooding	0.60	Salinity	1.00
7:						
Bojac	Somewhat limited		Somewhat limited		Not limited	
	Too sandy	0.01	Too sandy	0.01		
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	

Table 10b.—Recreation (Part 2)—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9A:						
Craven	Not limited		Not limited		Not limited	
Urban land	Not rated		Not rated		Not rated	
9B:						
Craven	Not limited		Not limited		Not limited	
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Too sandy	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Flooding	0.40	Flooding	0.40	Droughty	1.00
12:						
Johnston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	0.40	Flooding	0.40	Ponding	1.00
13:						
Lawnes	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Organic matter content	1.00	Organic matter content	1.00	Flooding	1.00
	Ponding	1.00	Ponding	1.00	Organic matter content	1.00
14:						
Levy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.60	Flooding	0.60	Depth to saturated zone	1.00
15:						
Munden	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.84	Too sandy	0.84	Depth to saturated zone	0.19
Urban land	Not rated		Not rated		Not rated	
16C:						
Nevarc	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Depth to saturated zone	0.19

Table 10b.—Recreation (Part 2)—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Uchee	Somewhat limited Too sandy	0.84	Somewhat limited Too sandy	0.84	Somewhat limited Slope Droughty	0.37 0.01
16D:						
Nevarc	Very limited Slope	1.00	Somewhat limited Slope	0.56	Very limited Slope Depth to saturated zone	1.00 0.19
Uchee	Somewhat limited Too sandy Slope	0.84 0.50	Somewhat limited Too sandy	0.84	Very limited Slope Droughty	1.00 0.01
17:						
Newflat	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.19
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Somewhat limited Too sandy	0.81	Somewhat limited Too sandy	0.81	Somewhat limited Droughty	0.83
Urban land	Not rated		Not rated		Not rated	
21A:						
Slagle	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.19
Urban land	Not rated		Not rated		Not rated	
21B:						
Slagle	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.19
Urban land	Not rated		Not rated		Not rated	
22:						
State	Not limited		Not limited		Not limited	
Urban land	Not rated		Not rated		Not rated	

Table 10b.—Recreation (Part 2)—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
23:						
Suffolk	Somewhat limited Too sandy	0.07	Somewhat limited Too sandy	0.07	Not limited	
24:						
Tomotley	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Somewhat limited Too sandy	0.84	Somewhat limited Too sandy	0.84	Somewhat limited Droughty	0.01
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 11a.—Building Site Development (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Somewhat limited Depth to saturated zone	0.98	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.98
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
4:						
Beaches	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
5:						
Bethera	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
7:						
Bojac	Not limited		Somewhat limited Depth to saturated zone	0.16	Not limited	
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00

Table 11a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
9A, 9B:						
Craven	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
12:						
Johnston	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
13:						
Lawnes	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
14:						
Levy	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
15:						
Munden	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
16C:						
Nevarc	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.39	Shrink-swell	0.50	Shrink-swell	0.50
	Slope	0.37	Slope	0.37	Depth to saturated zone	0.39

Table 11a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Uchee	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Depth to saturated zone	0.61	Slope	1.00
			Slope	0.37		
16D:						
Nevarc	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
Uchee	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to saturated zone	0.61		
17:						
Newflat	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.39	Shrink-swell	1.00	Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.99		
Urban land	Not rated		Not rated		Not rated	
21A, 21B:						
Slagle	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
Urban land	Not rated		Not rated		Not rated	
22:						
State	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.15		

Table 11a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Not limited		Not limited		Not limited	
24:						
Tomotley	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Not limited		Somewhat limited Depth to saturated zone	0.61	Not limited	
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 11b.—Building Site Development (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Somewhat limited		Very limited		Somewhat limited	
	Low strength	0.78	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Depth to saturated zone	0.19	Cutbanks cave	1.00		
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	0.22	Cutbanks cave	1.00		
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Sodium content	1.00
4:						
Beaches	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
			Flooding	0.80	Droughty	1.00
					Salinity	1.00
5:						
Bethera	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
7:						
Bojac	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
			Depth to saturated zone	0.16		
Urban land	Not rated		Not rated		Not rated	

Table 11b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:						
Chickahominy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Too clayey	0.28		
	Shrink-swell	1.00	Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
9A, 9B:						
Craven	Very limited		Somewhat limited		Not limited	
	Low strength	1.00	Depth to saturated zone	0.99		
	Shrink-swell	0.50	Too clayey	0.28		
			Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.48	Depth to saturated zone	1.00	Depth to saturated zone	0.48
			Cutbanks cave	1.00		
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
			Flooding	0.80	Droughty	1.00
12:						
Johnston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
13:						
Lawnes	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Organic matter content	1.00
14:						
Levy	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
15:						
Munden	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
			Cutbanks cave	1.00		
Urban land	Not rated		Not rated		Not rated	

Table 11b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16C:						
Nevarc	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Slope	0.37
	Shrink-swell	0.50	Slope	0.37	Depth to saturated zone	0.19
	Slope	0.37	Too clayey	0.12		
Uchee	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Depth to saturated zone	0.61	Droughty	0.01
			Slope	0.37		
16D:						
Nevarc	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Shrink-swell	0.50	Too clayey	0.12		
Uchee	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.01
			Depth to saturated zone	0.61		
17:						
Newflat	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
	Shrink-swell	1.00	Too clayey	0.28		
	Depth to saturated zone	0.99	Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00		
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Shrink-swell	1.00	Too clayey	0.50		
	Depth to saturated zone	0.19	Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.83
			Depth to saturated zone	0.99		
Urban land	Not rated		Not rated		Not rated	

Table 11b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21A, 21B:						
Slagle	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.19				
Urban land	Not rated		Not rated		Not rated	
22:						
State	Somewhat limited		Somewhat limited		Not limited	
	Flooding	0.40	Depth to saturated zone	0.15		
			Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
24:						
Tomotley	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	0.22	Cutbanks cave	1.00		
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.01
			Depth to saturated zone	0.61		
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 12a.—Sanitary Facilities (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Altavista	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage, bottom layer	1.00	Seepage	0.50
	Slow water movement	0.50		
Urban land	Not rated		Not rated	
2:				
Augusta	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Seepage	1.00
Urban land	Not rated		Not rated	
3:				
Axis	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
4:				
Beaches	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Slope	0.08
5:				
Bethera	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00		
Urban land	Not rated		Not rated	
6:				
Bohicket	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Slow water movement	1.00	Flooding	1.00
	Ponding	1.00	Organic matter content	1.00

Table 12a.—Sanitary Facilities (Part 1)—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
7:				
Bojac	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Depth to saturated zone	0.43		
Urban land	Not rated		Not rated	
8:				
Chickahominy	Very limited		Very limited	
	Slow water movement	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Urban land	Not rated		Not rated	
9A:				
Craven	Very limited		Very limited	
	Slow water movement	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Urban land	Not rated		Not rated	
9B:				
Craven	Very limited		Very limited	
	Slow water movement	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.32
Urban land	Not rated		Not rated	
10:				
Dragston	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
Urban land	Not rated		Not rated	
11:				
Duckston	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
12:				
Johnston	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00

Table 12a.—Sanitary Facilities (Part 1)—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
13:				
Lawnes	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
14:				
Levy	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Slow water movement	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
15:				
Munden	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
Urban land	Not rated		Not rated	
16C:				
Nevarc	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	0.75
			Depth to	0.75
Uchee	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	0.99	Slope	1.00
	Slope	0.37		
16D:				
Nevarc	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Slope	1.00	Depth to saturated zone	0.75
			Depth to	0.75
Uchee	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	0.99		
17:				
Newflat	Very limited		Very limited	
	Slow water movement	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		

Table 12a.—Sanitary Facilities (Part 1)—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated	
18:				
Nimmo	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.50		
Urban land	Not rated		Not rated	
19:				
Peawick	Very limited		Somewhat limited	
	Slow water movement	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	1.00		
Urban land	Not rated		Not rated	
20:				
Seabrook	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00		
Urban land	Not rated		Not rated	
21A, 21B:				
Slagle	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Slope	0.32
Urban land	Not rated		Not rated	
22:				
State	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.50	Flooding	0.40
	Depth to saturated zone	0.40		
Urban land	Not rated		Not rated	
23:				
Suffolk	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.50	Slope	0.32

Table 12a.—Sanitary Facilities (Part 1)—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
24:				
Tomotley	Very limited Depth to saturated zone Slow water movement	 1.00 0.68	Very limited Depth to saturated zone Seepage	 1.00 0.50
Urban land	Not rated		Not rated	
25:				
Uchee	Very limited Slow water movement Depth to saturated zone	 1.00 0.99	Very limited Seepage Slope	 1.00 0.32
26:				
Udorthents	Not rated		Not rated	
Dumps	Not rated		Not rated	
27:				
Urban land	Not rated		Not rated	
28:				
Yemassee	Very limited Depth to saturated zone Slow water movement	 1.00 0.50	Very limited Depth to saturated zone Seepage	 1.00 1.00
Urban land	Not rated		Not rated	
DAM:				
Dam	Not rated		Not rated	

Table 12b.—Sanitary Facilities (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Seepage, bottom layer	1.00				
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
2:						
Augusta	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
	Too sandy	0.50			Too sandy	0.50
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
3:						
Axis	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Sodium content	1.00
4:						
Beaches	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Too sandy	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Salinity	1.00
5:						
Bethera	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Hard to compact	1.00
	Too clayey	0.50			Ponding	1.00
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
6:						
Bohicket	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Sodium content	1.00

Table 12b.—Sanitary Facilities (Part 2)—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7:						
Bojac	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50				
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
8:						
Chickahominy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
9A, 9B:						
Craven	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Depth to saturated zone	0.47
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
10:						
Dragston	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.96
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
11:						
Duckston	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
12:						
Johnston	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Ponding	1.00

Table 12b.—Sanitary Facilities (Part 2)—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13:						
Lawnes	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00		
14:						
Levy	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
15:						
Munden	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Seepage	1.00	Seepage	1.00
	Seepage, bottom layer	1.00			Depth to saturated zone	0.86
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
16C:						
Nevarc	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
	Seepage, bottom layer	1.00	Slope	0.37	Depth to saturated zone	0.86
	Depth to saturated zone	0.99			Slope	0.37
Uchee	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Seepage	1.00	Slope	0.37
			Slope	0.37		
16D:						
Nevarc	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
	Seepage, bottom layer	1.00			Depth to saturated zone	0.86
Uchee	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Seepage	1.00		
17:						
Newflat	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		

Table 12b.—Sanitary Facilities (Part 2)—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18:						
Nimmo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage, bottom layer	1.00			Seepage	1.00
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
19:						
Peawick	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Depth to saturated zone	0.75	Too clayey	1.00
	Depth to saturated zone	0.99			Depth to saturated zone	0.86
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
20:						
Seabrook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50			Depth to saturated zone	0.47
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
21A, 21B:						
Slagle	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
22:						
State	Very limited		Very limited		Not limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Seepage, bottom layer	1.00	Flooding	0.40		
	Flooding	0.40				
Urban land	Not rated		Very limited		Not rated	
			Depth to saturated zone	1.00		
23:						
Suffolk	Very limited		Very limited		Not limited	
	Seepage, bottom layer	1.00	Seepage	1.00		

Table 12b.—Sanitary Facilities (Part 2)—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24:						
Tomotley	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Very limited Depth to saturated zone	1.00	Not rated	
25:						
Uchee	Not limited		Very limited Seepage	1.00	Not limited	
26:						
Udorthents	Not rated		Somewhat limited Slope	0.84	Not rated	
Dumps	Not rated		Somewhat limited Slope	0.84	Not rated	
27:						
Urban land	Not rated		Very limited Depth to saturated zone	1.00	Not rated	
28:						
Yemassee	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Urban land	Not rated		Very limited Depth to saturated zone	1.00	Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 13a.—Construction Materials (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
1:				
Altavista	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.04
Urban land	Not rated		Not rated	
2:				
Augusta	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10
Urban land	Not rated		Not rated	
3:				
Axis	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
4:				
Beaches	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.95
	Thickest layer	0.00	Thickest layer	0.95
5:				
Bethera	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Urban land	Not rated		Not rated	
6:				
Bohicket	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
7:				
Bojac	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.04
	Thickest layer	0.00	Bottom layer	0.08
Urban land	Not rated		Not rated	
8:				
Chickahominy	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Urban land	Not rated		Not rated	

Table 13a.—Construction Materials (Part 1)—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
9A, 9B:				
Craven	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Urban land	Not rated		Not rated	
10:				
Dragston	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.36
Urban land	Not rated		Not rated	
11:				
Duckston	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.36
	Thickest layer	0.00	Bottom layer	0.86
12:				
Johnston	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.11
13:				
Lawnes	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.43
14:				
Levy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.03
15:				
Munden	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.38
Urban land	Not rated		Not rated	
16C, 16D:				
Nevarc	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Uchee	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
17:				
Newflat	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Urban land	Not rated		Not rated	

Table 13a.—Construction Materials (Part 1)—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
18:				
Nimmo	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.85
Urban land	Not rated		Not rated	
19:				
Peawick	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Urban land	Not rated		Not rated	
20:				
Seabrook	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.10
	Thickest layer	0.00	Bottom layer	0.45
Urban land	Not rated		Not rated	
21A, 21B:				
Slagle	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Urban land	Not rated		Not rated	
22:				
State	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.04
Urban land	Not rated		Not rated	
23:				
Suffolk	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.36
24:				
Tomotley	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.11
Urban land	Not rated		Not rated	
25:				
Uchee	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
26:				
Udorthents	Not rated		Not rated	
Dumps	Not rated		Not rated	
27:				
Urban land	Not rated		Not rated	

Table 13a.—Construction Materials (Part 1)—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
28:				
Yemassee	Poor		Poor	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.00
Urban land	Not rated		Not rated	
DAM:				
Dam	Not rated		Not rated	

Table 13b.—Construction Materials (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Fair		Fair		Fair	
	Organic matter content low	0.12	Low strength	0.22	Wetness depth	0.53
	Too acid	0.20	Wetness depth	0.53	Too acid	0.76
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Fair		Fair		Fair	
	Organic matter content low	0.12	Wetness depth	0.14	Wetness depth	0.14
	Too acid	0.50			Too acid	0.68
					Hard to reclaim (rock fragments)	0.92
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Poor		Poor		Poor	
	Organic matter content low	0.00	Wetness depth	0.00	Wetness depth	0.00
	Sodium content	0.00			Sodium content	0.00
	Salinity	0.00			Salinity	0.00
4:						
Beaches	Poor		Good		Poor	
	Too sandy	0.00			Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00			Too sandy	0.00
	Droughty	0.00			Salinity	0.00
5:						
Bethera	Fair		Poor		Poor	
	Too clayey	0.08	Wetness depth	0.00	Wetness depth	0.00
	Too acid	0.50	Low strength	0.00	Too clayey	0.06
	Organic matter content low	0.88	Shrink-swell	0.89	Too acid	0.76
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Poor		Poor		Poor	
	Sodium content	0.00	Wetness depth	0.00	Wetness depth	0.00
	Too clayey	0.08	Low strength	0.00	Sodium content	0.00
	Salinity	0.50	Shrink-swell	0.12	Salinity	0.00
7:						
Bojac	Poor		Good		Good	
	Wind erosion	0.00				
	Organic matter content low	0.12				
	Too acid	0.50				

Table 13b.—Construction Materials (Part 2)—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Poor		Poor		Poor	
	Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
	Organic matter content low	0.12	Low strength	0.00	Too clayey	0.00
	Too acid	0.50	Shrink-swell	0.12	Too acid	0.24
Urban land	Not rated		Not rated		Not rated	
9A, 9B:						
Craven	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Too acid	0.12	Shrink-swell	0.87	Too acid	0.59
	Organic matter content low	0.12	Wetness depth	0.89	Wetness depth	0.89
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Fair		Fair		Fair	
	Organic matter content low	0.12	Wetness depth	0.29	Wetness depth	0.29
	Too acid	0.50			Too acid	0.68
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Poor		Poor		Poor	
	Too sandy	0.00	Wetness depth	0.00	Too sandy	0.00
	Wind erosion	0.00			Wetness depth	0.00
	Organic matter content low	0.00				
12:						
Johnston	Fair		Poor		Poor	
	Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
					Too acid	0.88
13:						
Lawnes	Fair		Poor		Poor	
	Too acid	0.54	Wetness depth	0.00	Wetness depth	0.00
	Sodium content	0.60			Sodium content	0.60
					Salinity	0.97
14:						
Levy	Poor		Poor		Poor	
	Sodium content	0.00	Wetness depth	0.00	Wetness depth	0.00
	Too acid	0.00	Shrink-swell	0.39	Sodium content	0.00
	Too clayey	0.00			Too clayey	0.00

Table 13b.—Construction Materials (Part 2)—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15:						
Munden	Poor		Fair		Fair	
	Wind erosion	0.00	Wetness depth	0.53	Wetness depth	0.53
	Organic matter content low	0.12			Too acid	0.68
	Too acid	0.50				
Urban land	Not rated		Not rated		Not rated	
16C:						
Nevarc	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Too acid	0.01	Wetness depth	0.53	Wetness depth	0.53
	Organic matter content low	0.12	Shrink-swell	0.93	Slope	0.63
Uchee	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.63
	Organic matter content low	0.12			Too acid	0.76
16D:						
Nevarc	Poor		Poor		Poor	
	Too clayey	0.00	Slope	0.00	Slope	0.00
	Too acid	0.01	Low strength	0.00	Too clayey	0.00
	Organic matter content low	0.12	Wetness depth	0.53	Wetness depth	0.53
Uchee	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.50	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Organic matter content low	0.12			Too acid	0.76
17:						
Newflat	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Too acid	0.12	Wetness depth	0.00	Wetness depth	0.00
	Organic matter content low	0.12	Shrink-swell	0.12	Too acid	0.59
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Fair		Poor		Poor	
	Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
	Too acid	0.50			Too acid	0.59
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Organic matter content low	0.12	Shrink-swell	0.12	Too acid	0.24
	Too acid	0.50	Wetness depth	0.53	Wetness depth	0.53

Table 13b.—Construction Materials (Part 2)—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Poor		Fair		Fair	
	Wind erosion	0.00	Wetness depth	0.89	Too sandy	0.01
	Too sandy	0.01			Too acid	0.68
	Organic matter content low	0.12			Wetness depth	0.89
Urban land	Not rated		Not rated		Not rated	
21A, 21B:						
Slagle	Fair		Poor		Fair	
	Too acid	0.12	Low strength	0.00	Wetness depth	0.53
	Organic matter content low	0.12	Wetness depth	0.53	Too clayey	0.53
	Too clayey	0.92	Shrink-swell	0.87	Too acid	0.59
Urban land	Not rated		Not rated		Not rated	
22:						
State	Fair		Good		Fair	
	Organic matter content low	0.12			Too acid	0.98
	Too acid	0.54				
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Poor		Good		Fair	
	Wind erosion	0.00			Too acid	0.76
	Organic matter content low	0.12				
	Too acid	0.50				
24:						
Tomotley	Fair		Poor		Poor	
	Too acid	0.01	Wetness depth	0.00	Wetness depth	0.00
	Organic matter content low	0.88	Low strength	0.78	Too acid	0.59
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.76
	Organic matter content low	0.12				
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	

Table 13b.—Construction Materials (Part 2)—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Fair		Poor		Poor	
	Too acid	0.16	Wetness depth	0.00	Wetness depth	0.00
					Too acid	0.68
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 14.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:						
Altavista	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping Seepage	0.99 0.60 0.04	Very limited Cutbanks cave Depth to saturated zone	1.00 0.01
Urban land	Not rated		Not rated		Not rated	
2:						
Augusta	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Seepage	1.00 0.10	Very limited Cutbanks cave Slow refill	1.00 0.30
Urban land	Not rated		Not rated		Not rated	
3:						
Axis	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 1.00	Very limited Salinity and saturated zone Slow refill Cutbanks cave	1.00 0.30 0.10
4:						
Beaches	Very limited Seepage	1.00	Very limited Salinity Seepage	1.00 0.95	Very limited Depth to water	1.00
5:						
Bethera	Somewhat limited Seepage	0.01	Very limited Depth to saturated zone Ponding	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Urban land	Not rated		Not rated		Not rated	
6:						
Bohicket	Not limited		Very limited Organic matter content Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Slow refill Salinity and saturated zone Cutbanks cave	1.00 0.78 0.10
7:						
Bojac	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Depth to water	1.00
Urban land	Not rated		Not rated		Not rated	
8:						
Chickahominy	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.76	Somewhat limited Slow refill Cutbanks cave	0.30 0.10

Table 14.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
9A, 9B:						
Craven	Not limited		Somewhat limited		Very limited	
			Depth to saturated zone	0.86	Slow refill	1.00
					Cutbanks cave	0.10
					Depth to saturated zone	0.06
Urban land	Not rated		Not rated		Not rated	
10:						
Dragston	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.36		
Urban land	Not rated		Not rated		Not rated	
11:						
Duckston	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.86		
12:						
Johnston	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.11		
13:						
Lawnes	Somewhat limited		Very limited		Very limited	
	Seepage	0.70	Ponding	1.00	Cutbanks cave	1.00
			Depth to saturated zone	1.00	Slow refill	0.30
			Piping	1.00	Salinity and saturated zone	0.01
						1
14:						
Levy	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.70	Ponding	1.00	Slow refill	0.30
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to pack	1.00		
15:						
Munden	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
			Seepage	0.38	Depth to saturated zone	0.01
Urban land	Not rated		Not rated		Not rated	
16C, 16D:						
Nevarc	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	0.99	Depth to water	1.00
	Seepage	1.00				

Table 14.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Uchee	Very limited		Not limited		Very limited	
	Seepage	1.00			Depth to water	1.00
	Slope	1.00				
17:						
Newflat	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Slow refill	1.00
					Cutbanks cave	0.10
			Hard to pack	0.63		
Urban land	Not rated		Not rated		Not rated	
18:						
Nimmo	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.85		
Urban land	Not rated		Not rated		Not rated	
19:						
Peawick	Not limited		Very limited		Very limited	
			Depth to saturated zone	0.99	Depth to water	1.00
			Hard to pack	0.60		
Urban land	Not rated		Not rated		Not rated	
20:						
Seabrook	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to saturated zone	0.06
			Seepage	0.45		
Urban land	Not rated		Not rated		Not rated	
21A, 21B:						
Slagle	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.08	Depth to saturated zone	0.99	Slow refill	0.99
	Seepage	0.01			Cutbanks cave	0.10
			Piping	0.03	Depth to saturated zone	0.01
Urban land	Not rated		Not rated		Not rated	
22:						
State	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.04	Depth to water	1.00
Urban land	Not rated		Not rated		Not rated	
23:						
Suffolk	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.36	Depth to water	1.00
	Slope	0.08				
24:						
Tomotley	Somewhat limited		Very limited		Very limited	
	Seepage	0.70	Depth to saturated zone	1.00	Cutbanks cave	1.00
					Slow refill	0.30
			Seepage	0.11		

Table 14.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Urban land	Not rated		Not rated		Not rated	
25:						
Uchee	Very limited		Not limited		Very limited	
	Seepage	1.00			Depth to water	1.00
	Slope	0.08				
26:						
Udorthents	Not rated		Not rated		Not rated	
Dumps	Not rated		Not rated		Not rated	
27:						
Urban land	Not rated		Not rated		Not rated	
28:						
Yemassee	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.70	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Seepage	0.01		
Urban land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 15.—Engineering Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1:												
Altavista-------	0-11	Fine sandy loam, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	95-100	90-100	55-95	27-75	21-40	6-16
	11-62	Loam, clay loam, sandy clay loam, fine sandy loam	CL, SC, SC-SM	A-6, A-7	0	0	95-100	90-100	65-100	35-80	27-44	12-25
	62-74	Stratified fine sandy loam to loamy fine sand to fine sand, sandy loam, fine sandy loam, sand, gravelly sandy loam	CL, CL-ML, SC, SC-SM	A-2-4, A-4, A-6	0	0	90-100	50-100	25-85	2-55	16-32	2-13
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
2:												
Augusta---------	0-13	Sandy loam, fine sandy loam, loam	ML, SC-SM, SM	A-2-4, A-4	0	0	90-100	90-100	55-95	27-75	17-35	2-13
	13-27	Sandy clay loam, clay loam, loam	CL	A-6, A-7	0	0	90-100	90-100	75-100	32-80	29-44	13-25
	27-72	Gravelly loamy sand, sandy loam, loam, sandy clay loam, clay loam, stratified loamy sand to gravelly loamy sand	SC-SM, SW-SC, CL	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	35-100	10-80	16-40	2-21
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
3:												
Axis------------	0-14	Very fine sandy loam, mucky very fine sandy loam, mucky silt loam, sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	100	60-100	30-90	14-25	1-7
	14-70	Fine sandy loam, sandy loam, very fine sandy loam, loam	CL-ML, SC-SM	A-4	0	0	100	100	60-95	30-75	14-20	1-4
4:												
Beaches---------	0-60	Sand, coarse sand, fine sand	SP	A-1, A-3	0	0	80-100	78-100	39-80	4-35	7-9	NP

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
5:												
Bethera	0-12	Silt loam, loam, fine sandy loam	CL	A-4, A-6	0	0	100	100	70-100	40-90	22-43	6-13
	12-72	Clay loam, clay, sandy clay, silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	85-100	45-95	44-60	25-36
Urban land	---	---	---	---	---	---	---	---	---	---	---	---
6:												
Bohicket	0-8	Silty clay loam, muck, silty clay, clay	OH, CH, MH	A-7-5	0	0	100	100	90-100	75-95	51-116	21-40
	8-29	Silty clay loam, silty clay, clay, clay loam, sandy clay, mucky silty clay loam	OH, CH, MH	A-7-5	0	0	100	100	85-100	45-95	55-107	25-41
	29-65	Silty clay, sand, clay, mucky silty clay	MH, OH	A-7-5	0	0	100	100	50-100	5-95	0-107	NP-41
7:												
Bojac	0-10	Loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-4, A-2-4	0	0	95-100	90-100	45-85	15-55	0-22	NP-4
	10-35	Sandy loam, fine sandy loam, loam, sandy clay loam, clay loam	CL, SC	A-2-4, A-4	0	0	95-100	90-100	55-100	27-80	21-38	6-19
	35-70	Loamy sand, loamy fine sand, coarse sand, stratified coarse sand to loamy fine sand	SC-SM, SM, SP, SW-SM	A-1, A-2-4, A-3	0	0	90-100	80-100	40-85	4-45	0-21	NP-4
Urban land	---	---	---	---	---	---	---	---	---	---	---	---
8:												
Chickahominy	0-5	Loam, silt loam, very fine sandy loam	CL, CL-ML, SC	A-4	0	0	98-100	95-100	81-100	48-90	21-39	6-17
	5-64	Clay, silty clay, clay loam, silty clay loam	CH, CL	A-7-6	0	0	98-100	95-100	72-100	56-95	45-69	25-44
Urban land	---	---	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
9A:												
Craven----------	0-10	Loam, silt loam, fine sandy loam	CL, ML, SC, SM	A-4, A-6	0	0	100	95-100	70-100	38-90	19-41	3-19
	10-45	Clay, silty clay, silty clay loam, clay loam	CH, CL	A-7-6	0	0	100	95-100	86-100	66-95	43-63	25-40
	45-70	Clay loam, clay, silty clay loam, silty clay, sandy clay loam, sandy clay	CH, CL	A-7-6, A-6	0	0	100	95-100	75-100	35-95	35-63	17-40
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
9B:												
Craven----------	0-10	Loam, silt loam, fine sandy loam	CL, ML, SC, SM	A-4, A-6	0	0	100	95-100	70-100	38-90	19-41	3-19
	10-45	Clay, silty clay, silty clay loam, clay loam	CH, CL	A-7-6	0	0	100	95-100	86-100	66-95	43-63	25-40
	45-70	Clay loam, clay, silty clay loam, silty clay, sandy clay loam, sandy clay	CH, CL	A-7-6, A-6	0	0	100	95-100	75-100	35-95	35-63	17-40
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
10:												
Dragston--------	0-4	Fine sandy loam, sandy loam, loamy sand, loam, loamy fine sand	CL-ML, SC-SM, SM	A-2-4, A-4	0	0	100	95-100	50-95	15-75	17-28	1-7
	4-25	Fine sandy loam, sandy loam, loam, loamy sand, loamy fine sand	CL, CL-ML, SC, SC-SM	A-2-4, A-4	0	0	100	95-100	50-95	15-75	0-30	NP-12
	25-75	Sand, fine sand, loamy sand, loamy fine sand, sandy loam	SC-SM, SM, SP-SM	A-1, A-2-4, A-3	0	0	95-100	85-100	45-85	5-55	0-25	NP-7
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
11:												
Duckston--------	0-4	Fine sand	SM	A-2	0	0	100	95-100	62-80	20-35	7-11	NP
	4-60	Sand, fine sand	SP-SM	A-2, A-3	0	0	100	95-100	48-80	5-33	7-11	NP

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
12:												
Johnston	0-24	Mucky silt loam, loam, sandy loam	CL-ML, ML, OL	A-4, A-5, A-6	0	0	100	100	60-95	30-75	20-45	2-14
	24-30	Sandy loam, loam, fine sandy loam, loamy sand	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-95	15-75	10-30	NP-5
	30-64	Loamy sand, stratified sand to sandy clay loam	SM	A-2-4, A-4	0	0	100	100	50-95	5-75	15-35	NP-10
13:												
Lawnes	0-13	Muck, mucky loam, sandy loam, fine sandy loam, loam, silt loam	PT	A-8	0	0	100	100	60-100	30-100	---	---
	13-55	Loam, sandy loam, stratified sand to mucky silty clay loam, muck	CL, CL-ML, ML, SC	A-2-4, A-4	0	0	100	100	50-95	5-75	17-56	2-20
	55-62	Sand, stratified sand to mucky silty clay loam, muck	SP-SC, PT, CL, CL-ML, ML, SC	A-2-4, A-4	0	0	100	100	50-95	3-75	0-70	NP-20
14:												
Levy	0-20	Mucky clay, clay, mucky silty clay, mucky silty clay loam, mucky silt loam	MH	A-7	0	0	100	100	90-100	75-95	58-103	17-37
	20-40	Mucky silty clay, mucky clay, silty clay	MH	A-7-6	0	0	100	100	90-100	75-95	55-97	25-42
	40-80	Stratified mucky sandy loam to sandy loam, sandy loam, mucky sandy loam, sand, clay	ML, SC-SM, CH	A-2-7, A-4, A-6	0	0	100	100	50-100	5-95	27-97	2-42
15:												
Munden	0-6	Loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam	SC-SM, SM	A-2-4, A-4	0	0	100	90-100	45-95	15-75	0-24	NP-6
	6-38	Fine sandy loam, sandy loam, loam	SC, SC-SM	A-2-4, A-4, A-6	0	0	100	90-100	55-85	30-55	18-30	4-12
	38-74	Sand, loamy sand, loamy coarse sand, loamy fine sand, fine sand, fine sandy loam, sandy loam	SC-SM, SM, SP-SM	A-2-4, A-3	0	0	100	90-100	45-85	5-55	0-25	NP-7
Urban land	---	---	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
16C:												
Nevarc	0-11	Sandy loam, fine sandy loam, loam, very fine sandy loam, silt loam	SC-SM, SC	A-2-4, A-4	0	0	98-100	95-100	60-100	30-90	20-33	4-12
	11-54	Clay, sandy clay, silty clay, clay loam, sandy clay loam, silty clay loam	CH, CL	A-7	0	0	98-100	95-100	76-100	35-95	43-63	24-40
	54-72	Fine sandy loam, sandy loam, loamy sand, sand, stratified sand to clay	CL, ML, SC, SM	A-2-4, A-4, A-6	0	0	98-100	95-100	50-100	5-95	16-53	2-32
Uchee	0-4	Loamy fine sand, loamy sand, sand	SC-SM, SM	A-1-b, A-2-4	0	0	90-100	80-100	40-75	5-30	0-29	NP-6
	4-26	Loamy sand, sand	SC-SM, SM	A-1-b, A-2-4	0	0	90-100	80-100	40-75	5-30	0-29	NP-6
	26-50	Sandy clay loam, sandy loam, sandy clay, clay, loamy sand	SC, SC-SM	A-2-4, A-4, A-6	0	0	90-100	80-100	40-95	12-60	15-49	1-28
	50-72	Sandy clay loam, sandy loam, clay, sandy clay	CL, SC	A-7, A-6, A-4	0	0	90-100	80-100	50-100	25-95	26-59	10-36
16D:												
Nevarc	0-11	Sandy loam, fine sandy loam, loam, very fine sandy loam, silt loam	SC-SM, SC	A-2-4, A-4	0	0	98-100	95-100	60-100	30-90	20-33	4-12
	11-54	Clay, sandy clay, silty clay, clay loam, sandy clay loam, silty clay loam	CH, CL	A-7	0	0	98-100	95-100	76-100	35-95	43-63	24-40
	54-72	Fine sandy loam, sandy loam, loamy sand, sand, stratified sand to clay	CL, ML, SC, SM	A-2-4, A-4, A-6	0	0	98-100	95-100	50-100	5-95	16-53	2-32
Uchee	0-4	Loamy fine sand, loamy sand, sand	SC-SM, SM	A-1-b, A-2-4	0	0	90-100	80-100	40-75	5-30	0-29	NP-6
	4-26	Loamy sand, sand	SC-SM, SM	A-1-b, A-2-4	0	0	90-100	80-100	40-75	5-30	0-29	NP-6
	26-50	Sandy clay loam, sandy loam, sandy clay, clay, loamy sand	SC, SC-SM	A-2-4, A-4, A-6	0	0	90-100	80-100	40-95	12-60	15-49	1-28
	50-72	Sandy clay loam, sandy loam, clay, sandy clay	CL, SC	A-7, A-6, A-4	0	0	90-100	80-100	50-100	25-95	26-59	10-36

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
17:												
Newflat---------	0-6	Silt loam, loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	100	82-100	58-90	21-41	6-17
	6-55	Silty clay, clay, silty clay loam, clay loam	CH, CL	A-7-6	0	0	100	100	86-100	66-95	45-69	25-44
	55-64	Clay loam, clay, silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	86-100	66-95	41-69	21-44
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
18:												
Nimmo-----------	0-14	Sandy loam, fine sandy loam, loamy fine sand, loamy sand	ML, SC, SC-SM, SM	A-2-4, A-4	0	0	100	95-100	50-85	15-55	17-32	1-9
	14-32	Fine sandy loam, sandy loam, loam	CL, SC	A-2-4, A-4	0	0	100	95-100	60-95	30-75	18-30	4-12
	32-64	Coarse sand, loamy sand, loamy fine sand, sand, fine sand, gravelly sand	SC-SM, SM, SP-SM	A-2-4, A-3	0	0	100	70-100	35-85	5-45	0-21	NP-4
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
19:												
Peawick---------	0-5	Silt loam, loam	CL, CL-ML	A-4	0	0	98-100	95-100	80-100	55-90	21-39	6-17
	5-36	Silty clay, clay, silty clay loam, clay loam	CH, CL	A-7-6	0	0	98-100	95-100	85-100	65-95	45-69	25-44
	36-64	Clay, silty clay, silty clay loam, clay loam	CH, CL	A-7-6	0	0	98-100	95-100	85-100	65-95	45-69	25-44
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
20:												
Seabrook--------	0-9	Loamy sand, loamy fine sand, fine sand	SM, SC-SM	A-2-4	0	0	100	100	45-85	15-45	0-28	NP-7
	9-60	Loamy sand, loamy fine sand, fine sand, sand, loamy coarse sand	SM, SC-SM	A-2-4, A-3	0	0	100	100	50-85	5-45	0-25	NP-7
	60-80	Gravelly sand, sand, loamy sand, loamy fine sand, fine sand, loamy coarse sand	SM, SC-SM, SW	A-2-4, A-3, A-1-b	0	0	70-100	50-100	25-85	2-45	0-25	NP-7
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
21A:												
Slagle----------	0-10	Fine sandy loam, sandy loam, loam	CL, SC, SC-SM	A-2-4, A-4	0	0-2	95-100	92-100	55-95	28-75	20-33	4-12
	10-44	Sandy clay loam, loam, clay loam, fine sandy loam	CL, SC	A-7, A-6	0	0-2	95-100	92-100	65-100	40-80	29-50	12-29
	44-63	Sandy clay loam, loam, clay loam, fine sandy loam	CL, SC	A-6, A-7	0	0-2	95-100	92-100	65-100	40-95	29-50	12-29
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
21B:												
Slagle----------	0-10	Fine sandy loam, sandy loam, loam	CL, SC, SC-SM	A-2-4, A-4	0	0-2	95-100	92-100	55-95	28-75	20-33	4-12
	10-44	Sandy clay loam, loam, clay loam, fine sandy loam	CL, SC	A-6, A-7	0	0-2	95-100	92-100	65-100	40-80	29-50	12-29
	44-63	Sandy clay loam, loam, clay loam, fine sandy loam	CL, SC	A-6, A-7	0	0-2	95-100	92-100	65-100	40-95	29-50	12-29
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
22:												
State-----------	0-10	Fine sandy loam, sandy loam, loam, loamy sand	CL-ML, CL, SC-SM, SC	A-2-4, A-4	0	0	98-100	96-100	48-95	14-75	17-31	2-10
	10-56	Sandy clay loam, clay loam, loam, sandy loam	CL, SC	A-6	0	0	98-100	96-100	57-100	28-80	27-43	12-24
	56-84	Sandy loam, loamy sand, sand, gravelly sand	SC-SM, SC, SP-SM	A-1-b, A-2-4, A-3, A-4	0	0	85-100	62-100	30-75	3-40	0-27	NP-10
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
23:												
Suffolk---------	0-10	Loamy sand, sandy loam, fine sandy loam	SC-SM, SM	A-1-b, A-2-4, A-4	0	0	95-100	92-100	45-85	15-55	16-24	1-6
	10-38	Sandy loam, fine sandy loam, loam, sandy clay loam	CL, SC	A-4, A-2-4, A-6	0	0	95-100	92-100	55-95	25-75	20-43	6-23
	38-65	Sand, fine sand, loamy fine sand, loamy sand, gravelly sand	SC-SM, SM, SP, SP-SC	A-1-b, A-2-4, A-4	0	0	75-100	55-100	30-85	3-45	15-22	1-6

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
24:												
Tomotley	0-4	Fine sandy loam, loam, loamy fine sand, loamy sand	SC-SM, SM	A-2-4, A-4	0	0	98-100	92-100	45-85	15-55	18-43	2-13
	4-15	Fine sandy loam, sandy clay loam, clay loam, loam	CL, CL-ML, SC, SC-SM	A-4, A-6, A-7	0	0	98-100	92-100	65-100	38-80	20-44	6-25
	15-65	Sandy clay loam, fine sandy loam, clay loam, loam	CL, SC, SC-SM	A-6	0	0	98-100	92-100	65-100	38-80	28-45	12-25
	65-75	Loamy sand, stratified sand to clay		A-4, A-6, A-7, A-2-4, A-3	0	0	100	100	50-100	5-95	0-57	NP-36
Urban land	---	---	---	---	---	---	---	---	---	---	---	---
25:												
Uchee	0-4	Loamy fine sand, loamy sand, sand	SC-SM, SM	A-1-b, A-2-4	0	0	90-100	80-100	40-75	5-30	0-29	NP-6
	4-26	Loamy sand, sand	SC-SM, SM	A-1-b, A-2-4	0	0	90-100	80-100	40-75	5-30	0-29	NP-6
	26-50	Sandy clay loam, sandy loam, sandy clay, clay, loamy sand	SC, SC-SM	A-2-4, A-4, A-6	0	0	90-100	80-100	40-95	12-60	15-49	1-28
	50-72	Sandy clay loam, sandy loam, clay, sandy clay	CL, SC	A-7, A-6, A-4	0	0	90-100	80-100	50-100	25-95	26-59	10-36
26:												
Udorthents	---	---	---	---	---	---	---	---	---	---	---	---
Dumps	---	---	---	---	---	---	---	---	---	---	---	---
27:												
Urban land	---	---	---	---	---	---	---	---	---	---	---	---
28:												
Yemassee	0-15	Fine sandy loam, sandy loam, loamy fine sand, loamy sand	SC, SC-SM	A-2-4, A-4	0	0	100	100	50-85	15-55	21-39	6-13
	15-40	Sandy clay loam, clay loam, fine sandy loam, sandy loam	CL, SC, SC-SM	A-6, A-7	0	0	100	100	60-100	30-80	27-47	12-24
	40-60	Sandy loam, sandy clay loam, clay loam	CL-ML, SC, SC-SM, CL	A-2-4, A-4, A-6	0	0	100	100	60-100	30-80	22-49	7-28

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
DAM:												
Dam----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 16.—Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
1:														
Altavista	0-11	25-80	10-45	10-24	1.30-1.50	14.00-42.00	0.12-0.20	0.0-2.9	0.5-3.0	.24	.24	5	3	86
	11-62	20-80	5-45	18-35	1.30-1.50	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.5	.24	.24			
	62-74	50-95	2-25	5-20	1.40-1.70	4.00-142.00	0.05-0.15	0.0-2.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
2:														
Augusta	0-13	25-80	10-45	5-20	1.40-1.70	14.00-42.00	0.10-0.15	0.0-2.9	0.5-2.0	.20	.20	4	3	86
	13-27	20-75	10-45	20-35	1.35-1.60	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	27-72	25-85	5-45	5-30	1.40-1.70	4.00-14.00	0.05-0.15	0.0-2.9	0.0-0.5	.05	.10			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
3:														
Axis	0-14	---	---	8-20	1.20-1.40	4.00-14.00	0.08-0.15	0.0-2.9	4.0-8.0	.24	.24	5	8	0
	14-70	---	---	8-15	1.30-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.0-0.0	.10	.10			
4:														
Beaches	0-60	---	---	0-2	1.35-1.85	141.00-141.00	0.03-0.05	0.0-2.9	0.0-0.1	.05	.05	5	1	310
5:														
Bethera	0-12	15-80	5-75	10-20	1.20-1.40	4.00-14.00	0.11-0.16	0.0-2.9	1.0-6.0	.28	.28	5	5	56
	12-72	5-60	5-65	35-50	1.30-1.50	0.42-4.00	0.14-0.18	3.0-5.9	0.5-1.0	.32	.32			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
6:														
Bohicket	0-8	1-40	10-65	30-60	1.20-1.40	0.42-1.40	0.12-0.32	6.0-8.9	5.0-25	.28	.28	5	8	0
	8-29	1-55	10-65	35-60	1.30-1.60	0.01-0.42	0.10-0.28	6.0-8.9	5.0-20	.28	.28			
	29-65	1-90	5-65	2-60	1.30-1.60	0.01-141.00	0.02-0.28	6.0-8.9	5.0-20	.15	.15			
7:														
Bojac	0-10	50-88	5-45	3-8	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.5-1.0	.17	.17	3	2	134
	10-35	25-80	5-45	11-28	1.35-1.55	14.00-42.00	0.08-0.16	0.0-2.9	0.0-0.5	.17	.17			
	35-70	75-98	2-25	1-8	1.30-1.50	42.00-141.00	0.02-0.07	0.0-2.9	0.0-0.5	.17	.17			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---

Table 16.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
8:														
Chickahominy	0-5	10-75	10-75	10-25	1.20-1.30	4.00-14.00	0.10-0.17	0.0-2.9	0.5-2.0	.37	.37	4	3	86
	5-64	5-40	30-60	35-60	1.30-1.50	0.01-0.42	0.10-0.19	6.0-8.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
9A:														
Craven	0-10	10-80	5-75	7-27	1.30-1.45	1.40-14.00	0.12-0.15	0.0-2.9	0.5-2.0	.32	.32	5	5	56
	10-45	5-40	20-60	35-55	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.32	.32			
	45-70	5-75	5-60	25-55	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.32	.32			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
9B:														
Craven	0-10	10-80	5-75	7-27	1.30-1.45	1.40-14.00	0.12-0.15	0.0-2.9	0.5-2.0	.32	.32	5	5	56
	10-45	5-40	20-60	35-55	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.32	.32			
	45-70	5-75	5-60	25-55	1.30-1.45	0.42-1.40	0.12-0.15	3.0-5.9	0.0-0.5	.32	.32			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
10:														
Dragston	0-4	30-88	3-45	4-12	1.20-1.50	14.00-42.00	0.08-0.15	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	4-25	30-88	3-45	3-18	1.25-1.45	14.00-42.00	0.08-0.16	0.0-2.9	0.0-0.5	.17	.17			
	25-75	50-99	1-45	2-12	1.35-1.55	42.00-141.00	0.04-0.10	0.0-2.9	0.0-0.5	.17	.17			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
11:														
Duckston	0-4	---	---	0-4	1.60-1.70	141.00-141.00	0.02-0.08	0.0-2.9	0.5-3.0	.10	.10	5	1	180
	4-60	---	---	0-4	1.60-1.70	141.00-141.00	0.02-0.05	0.0-2.9	0.0-0.0	.10	.10			
12:														
Johnston	0-24	32-85	5-65	7-18	1.25-1.45	14.00-42.00	0.20-0.26	0.0-2.9	3.0-15	.17	.17	5	5	56
	24-30	32-91	5-50	2-12	1.55-1.65	42.00-141.00	0.02-0.07	0.0-2.9	0.5-3.0	.17	.17			
	30-64	45-95	3-29	5-20	1.45-1.65	42.00-141.00	0.06-0.12	0.0-2.9	0.0-2.0	.17	.17			
13:														
Lawnes	0-13	15-80	5-75	5-20	0.20-1.20	4.00-14.00	0.15-0.26	0.0-2.9	20-60	.24	.24	5	8	0
	13-55	5-98	2-75	5-30	1.15-1.40	4.00-14.00	0.05-0.22	0.0-2.9	0.5-8.0	.28	.28			
	55-62	5-99	1-75	2-30	1.15-1.40	4.00-14.00	0.05-0.22	0.0-2.9	0.5-15	.28	.28			

Table 16.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
14:														
Levy	0-20	2-45	5-80	25-55	0.50-1.00	0.21-1.40	0.16-0.22	6.0-8.9	10-20	.20	.20	5	8	0
	20-40	0-40	10-60	40-60	0.50-1.10	0.21-1.40	0.16-0.22	6.0-8.9	5.0-15	.17	.17			
	40-80	15-98	0-45	2-60	1.15-1.35	4.00-14.00	0.15-0.22	0.0-9.0	5.0-15	.24	.24			
15:														
Munden	0-6	40-88	2-40	3-10	1.20-1.35	14.00-42.00	0.06-0.10	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	6-38	40-80	5-40	8-18	1.20-1.35	4.00-42.00	0.08-0.18	0.0-2.9	0.0-0.5	.17	.17			
	38-74	55-99	1-35	2-12	1.35-1.55	14.00-141.00	0.04-0.08	0.0-2.9	0.0-0.5	.17	.17			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
16C:														
Nevarc	0-11	10-80	5-75	8-18	1.30-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.5-2.0	.32	.32	4	3	86
	11-54	5-70	5-60	34-55	1.30-1.50	0.42-1.40	0.10-0.17	3.0-5.9	0.0-0.5	.24	.24			
	54-72	20-99	1-45	5-45	1.30-1.50	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.5	.20	.24			
Uchee	0-4	75-99	1-25	3-10	1.30-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10	5	2	134
	4-26	75-99	1-25	3-10	1.30-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10			
	26-50	25-85	5-45	4-40	1.40-1.60	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.5	.24	.24			
	50-72	25-80	5-45	15-50	1.40-1.60	1.40-4.00	0.10-0.16	3.0-5.9	0.0-0.5	.28	.28			
16D:														
Nevarc	0-11	10-80	5-75	8-18	1.30-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.5-2.0	.32	.32	4	3	86
	11-54	5-70	5-60	34-55	1.30-1.50	0.42-1.40	0.10-0.17	3.0-5.9	0.0-0.5	.24	.24			
	54-72	20-99	1-45	5-45	1.30-1.50	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.5	.20	.24			
Uchee	0-4	75-99	1-25	3-10	1.30-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10	5	2	134
	4-26	75-99	1-25	3-10	1.30-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10			
	26-50	25-85	5-45	4-40	1.40-1.60	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.5	.24	.24			
	50-72	25-80	5-45	15-50	1.40-1.60	1.40-4.00	0.10-0.16	3.0-5.9	0.0-0.5	.28	.28			
17:														
Newflat	0-6	10-65	10-75	10-25	1.20-1.30	4.00-14.00	0.10-0.17	0.0-2.9	0.5-3.0	.37	.37	4	3	86
	6-55	2-35	20-65	35-60	1.30-1.50	0.01-0.42	0.10-0.19	6.0-8.9	0.0-0.5	.24	.24			
	55-64	2-45	15-65	30-60	1.30-1.50	0.01-2.00	0.10-0.19	6.0-8.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
18:														
Nimmo	0-14	55-88	3-40	4-14	1.20-1.35	14.00-42.00	0.08-0.16	0.0-2.9	1.0-3.0	.20	.20	5	4	86
	14-32	35-75	5-45	8-18	1.20-1.35	4.00-14.00	0.08-0.18	0.0-2.9	0.0-0.5	.17	.17			
	32-64	80-100	0-20	1-8	1.35-1.55	14.00-141.00	0.04-0.08	0.0-2.9	0.0-0.5	.17	.17			

Table 16.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
19:														
Peawick	0-5	5-45	40-75	10-25	1.20-1.30	4.00-14.00	0.10-0.17	0.0-2.9	0.5-2.0	.37	.37	4	3	86
	5-36	2-40	25-60	35-60	1.30-1.50	0.01-0.42	0.10-0.17	6.0-8.9	0.0-0.5	.24	.24			
	36-64	2-40	25-60	35-60	1.30-1.50	0.01-0.42	0.10-0.17	6.0-8.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
20:														
Seabrook	0-9	70-98	2-20	2-12	1.30-1.60	42.00-141.00	0.05-0.11	0.0-2.9	0.5-2.0	.10	.10	5	2	134
	9-60	75-99	1-25	2-12	1.30-1.60	42.00-141.00	0.02-0.09	0.0-2.9	0.0-0.5	.10	.10			
	60-80	75-100	0-25	2-12	1.30-1.60	42.00-141.00	0.02-0.09	0.0-2.9	0.0-0.5	.10	.10			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
21A:														
Slagle	0-10	35-80	5-40	8-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	10-44	25-80	5-45	18-40	1.35-1.60	0.42-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	44-63	25-80	5-45	18-40	1.35-1.60	0.42-4.00	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
21B:														
Slagle	0-10	35-80	5-40	8-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	10-44	25-80	5-45	18-40	1.35-1.60	0.42-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	44-63	25-80	5-45	18-40	1.35-1.60	0.42-4.00	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
22:														
State	0-10	30-88	5-45	5-15	1.25-1.40	4.00-42.00	0.08-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	10-56	25-75	5-45	18-34	1.35-1.50	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.28	.28			
	56-84	50-98	1-40	2-15	1.35-1.50	14.00-141.00	0.02-0.10	0.0-2.9	0.0-0.2	.17	.17			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
23:														
Suffolk	0-10	60-88	0-25	4-10	1.40-1.50	14.00-141.00	0.05-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	10-38	30-80	2-30	10-33	1.40-1.50	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-65	72-99	0-25	4-10	1.40-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			

Table 16.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
24:														
Tomotley	0-4	45-88	3-40	5-20	1.30-1.60	14.00-42.00	0.10-0.15	0.0-2.9	1.0-6.0	.20	.20	5	3	86
	4-15	25-75	5-50	10-35	1.30-1.60	1.40-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.20	.20			
	15-65	25-75	5-50	18-35	1.30-1.50	4.00-14.00	0.12-0.18	0.0-2.9	0.5-1.0	.20	.20			
	65-75	25-99	1-45	2-50	1.30-1.70	1.40-14.00	0.05-0.15	0.0-2.9	0.0-0.5	.10	.10			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
25:														
Uchee	0-4	75-99	1-25	3-10	1.30-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10	5	2	134
	4-26	75-99	1-25	3-10	1.30-1.70	42.00-141.00	0.05-0.10	0.0-2.9	0.2-3.0	.10	.10			
	26-50	25-85	5-45	4-40	1.40-1.60	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.5	.24	.24			
	50-72	25-80	5-45	15-50	1.40-1.60	1.40-4.00	0.10-0.16	3.0-5.9	0.0-0.5	.28	.28			
26:														
Udorthents	---	---	---	---	---	---	---	---	---	---	---	--	---	---
Dumps	---	---	---	---	---	---	---	---	---	---	---	--	8	0
27:														
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
28:														
Yemassee	0-15	55-88	1-30	10-20	1.30-1.60	14.00-42.00	0.10-0.15	0.0-2.9	0.5-4.0	.24	.24	5	3	86
	15-40	30-80	5-30	18-35	1.30-1.50	4.00-14.00	0.11-0.18	0.0-2.9	0.0-2.0	.15	.15			
	40-60	25-80	5-35	12-40	1.30-1.50	4.00-14.00	0.11-0.17	0.0-2.9	0.0-0.5	.24	.24			
Urban land	---	---	---	---	---	---	---	---	---	---	---	--	---	---
DAM:														
Dam	---	---	---	---	---	---	---	---	---	---	---	--	---	---

Table 17.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
1:						
Altavista	0-11	4.6-15	3.5-11	4.0-6.5	0	0
	11-62	6.3-13	4.7-10	4.0-6.0	0	0
	62-74	1.8-8.1	1.3-6.1	4.0-6.0	0	0
Urban land	---	---	---	---	---	---
2:						
Augusta	0-13	2.9-12	2.2-8.6	4.5-6.0	0	0
	13-27	7.0-13	5.2-10	4.5-6.0	0	0
	27-72	1.8-8.6	1.3-6.5	4.5-6.0	0	0
Urban land	---	---	---	---	---	---
3:						
Axis	0-14	11-23	8.3-17	6.1-8.4	7.0-775.0	28-66
	14-70	2.0-3.8	1.5-2.8	6.1-8.4	4.0-113.0	12-56
4:						
Beaches	0-60	0.0-0.1	0.0-0.1	5.1-7.8	4.0-32.0	---
5:						
Bethera	0-12	5.8-20	4.3-15	4.0-6.0	0	0
	12-72	13-20	10-15	4.0-6.0	0	0
Urban land	---	---	---	---	---	---
6:						
Bohicket	0-8	22-77	16-58	6.1-8.4	8.0-16.0	40-55
	8-29	24-66	18-50	6.1-8.4	8.0-16.0	45-55
	29-65	12-66	9.0-50	6.1-8.4	8.0-16.0	45-55
7:						
Bojac	0-10	2.2-5.0	1.6-3.8	4.0-6.5	0	0
	10-35	3.9-8.1	2.9-6.3	4.0-6.5	0	0
	35-70	0.3-3.9	0.3-2.9	4.0-6.5	0	0
Urban land	---	---	---	---	---	---
8:						
Chickahominy	0-5	4.6-13	3.5-9.9	4.0-5.5	0	0
	5-64	12-22	9.2-17	4.0-5.5	0	0
Urban land	---	---	---	---	---	---
9A, 9B:						
Craven	0-10	2.9-11	2.2-8.4	4.0-6.5	0	0
	10-45	8.8-16	6.6-12	4.0-5.5	0	0
	45-70	6.2-15	4.7-11	4.0-5.5	0	0
Urban land	---	---	---	---	---	---
10:						
Dragston	0-4	3.6-8.7	2.7-6.5	4.5-5.5	0	0
	4-25	3.5-7.4	2.6-5.6	4.5-5.5	0	0
	25-75	0.7-5.3	0.5-4.0	4.5-6.5	0	0
Urban land	---	---	---	---	---	---

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
11:						
Duckston	0-4	1.4-7.9	0.8-5.8	3.6-8.4	0	0
	4-60	0.0-0.9	0.0-0.7	3.6-8.4	0	0
12:						
Johnston	0-24	8.5-38	6.4-29	4.5-5.5	0	0
	24-30	1.6-9.8	1.2-7.3	4.5-5.5	0	0
	30-64	1.2-9.5	0.9-7.1	4.5-5.5	0	0
13:						
Lawnes	0-13	20-50	15-38	5.1-7.3	1.0-8.0	2-13
	13-55	2.9-24	2.2-18	5.1-7.3	1.0-8.0	2-13
	55-62	2.9-40	2.2-30	5.1-7.3	1.0-8.0	2-13
14:						
Levy	0-20	36-66	27-50	3.6-5.5	0.0-2.0	10-20
	20-40	24-55	18-41	3.6-5.5	0.0-2.0	10-20
	40-80	13-55	9.8-41	4.5-7.8	1.0-8.0	2-13
15:						
Munden	0-6	2.2-5.8	1.6-4.3	4.5-6.0	0	0
	6-38	2.8-7.4	2.1-5.6	4.5-6.0	0	0
	38-74	0.7-5.3	0.5-4.0	4.5-6.0	0	0
Urban land	---	---	---	---	---	---
16C, 16D:						
Nevarc	0-11	3.1-9.0	2.3-6.8	4.0-6.0	0	0
	11-54	8.8-15	6.6-11	4.0-6.0	0	0
	54-72	1.2-12	0.9-9.3	4.0-6.0	0	0
Uchee	0-4	1.2-9.2	0.9-6.9	4.5-5.5	0	0
	4-26	1.2-9.2	0.9-6.9	4.5-5.5	0	0
	26-50	1.0-5.6	0.5-6.5	4.5-5.5	0	0
	50-72	6.2-14	4.7-10	4.5-5.5	0	0
17:						
Newflat	0-6	4.6-16	3.5-12	4.0-5.5	0	0
	6-55	12-22	9.2-17	4.0-5.5	0	0
	55-64	12-22	9.2-17	4.0-5.5	0	0
Urban land	---	---	---	---	---	---
18:						
Nimmo	0-14	3.6-12	2.7-8.7	4.0-5.5	0	0
	14-32	2.8-7.4	2.1-5.6	4.0-5.5	0	0
	32-64	0.3-3.9	0.3-2.9	4.0-5.5	0	0
Urban land	---	---	---	---	---	---
19:						
Peawick	0-5	4.6-13	3.5-9.9	4.0-5.5	0	0
	5-36	12-22	9.2-17	4.0-5.5	0	0
	36-64	12-22	9.2-17	4.0-5.5	0	0
Urban land	---	---	---	---	---	---

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	mmhos/cm	
20:						
Seabrook	0-9	1.6-7.5	1.2-5.6	4.0-6.5	0	0
	9-60	0.5-4.1	0.4-3.1	4.0-6.5	0	0
	60-80	0.5-4.1	0.4-3.1	4.0-6.5	0	0
Urban land	---	---	---	---	---	---
21A, 21B:						
Slagle	0-10	3.1-9.0	2.3-6.8	4.0-5.5	0	0
	10-44	4.5-11	3.4-8.3	4.0-5.5	0	0
	44-63	4.5-11	3.4-7.5	4.0-5.5	0	0
Urban land	---	---	---	---	---	---
22:						
State	0-10	2.4-8.2	1.8-6.2	4.0-7.3	0	0
	10-56	4.5-9.6	3.4-7.2	4.0-5.5	0	0
	56-84	0.5-4.3	0.4-3.2	4.0-6.5	0	0
Urban land	---	---	---	---	---	---
23:						
Suffolk	0-10	2.1-4.8	1.6-3.6	4.0-6.0	0	0
	10-38	2.5-9.4	1.9-7.0	4.0-6.0	0	0
	38-65	1.0-3.0	0.8-2.2	4.0-6.0	0	0
24:						
Tomotley	0-4	4.0-20	3.0-15	4.0-5.5	0	0
	4-15	3.5-15	2.6-121	4.0-6.0	0	0
	15-65	7.4-14	5.6-11	4.0-5.5	0	0
	65-75	1.8-19	1.3-14	4.0-6.0	0	0
Urban land	---	---	---	---	---	---
25:						
Uchee	0-4	1.2-9.2	0.9-6.9	4.5-5.5	0	0
	4-26	1.2-9.2	0.9-6.9	4.5-5.5	0	0
	26-50	1.0-5.6	0.5-6.5	4.5-5.5	0	0
	50-72	6.2-14	4.7-10	4.5-5.5	0	0
26:						
Udorthents	---	---	---	---	---	---
Dumps	---	---	---	---	---	---
27:						
Urban land	---	---	---	---	---	---
28:						
Yemassee	0-15	3.6-14	2.7-10	4.0-6.5	0	0
	15-40	4.5-13	3.4-9.9	4.0-5.5	0	0
	40-60	3.0-11	2.2-8.3	4.0-5.5	0	0
Urban land	---	---	---	---	---	---
DAM:						
Dam	---	---	---	---	---	---

Table 18.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
1:										
Altavista	C	Low								
			Dec.-Apr.	1.5-2.5	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
2:										
Augusta	C	Very high								
			Dec.-May	1.0-2.0	>6.0	---	---	None	---	None
			June-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
3:										
Axis	D	Negligible								
			Jan.-Dec.	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	Very brief	Very frequent
4:										
Beaches	D	Negligible								
			Jan.-Dec.	---	---	---	---	None	Long	Frequent
5:										
Bethera	D	Negligible								
			Dec.-Apr.	0.0	>6.0	0.0-1.0	Long	Occasional	---	None
			May-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
6:										
Bohicket	D	Negligible								
			Jan.-Dec.	0.0	>6.0	0.0-3.0	Very brief	Frequent	Very brief	Very frequent
7:										
Bojac	B	Very low								
			Dec.-Apr.	4.0-6.6	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
8:										
Chickahominy	D	Very high								
			Nov.-Apr.	0.0-0.5	>6.0	---	---	None	---	None
			May-Oct.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
9A, 9B:										
Craven	C	Low								
			Dec.-Apr.	2.0-3.0	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
10:										
Dragston	C	Very low								
			Dec.-Apr.	1.0-2.5	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
11:										
Duckston	A/D	Very high								
			Jan.-Dec.	0.0-0.5	>6.0	---	---	None	Brief	Frequent
12:										
Johnston	D	Negligible								
			Nov.-June	0.0	>6.0	0.0-1.0	Long	Frequent	Long	Frequent
			July	---	---	---	---	None	Long	Frequent
			Aug.-Oct.	---	---	---	---	None	---	None
13:										
Lawnes	D	Negligible								
			Jan.-Dec.	0.0	>6.0	0.0-3.0	Long	Frequent	Very long	Very frequent

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
14:										
Levy	D	Medium								
			Jan.-Dec.	0.0	>6.0	0.0-3.0	Very brief	Frequent	Very brief	Very frequent
15:										
Munden	B	Very low								
			Dec.-Apr.	1.5-2.5	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
16C:										
Nevarc	C	Medium								
			Dec.-Apr.	1.5-3.0	2.5-6.6	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
Uchee	A	Medium								
			Dec.-Apr.	3.5-5.0	4.5-6.6	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
16D:										
Nevarc	C	Medium								
			Dec.-Apr.	1.5-3.0	2.5-6.6	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
Uchee	A	High								
			Dec.-Apr.	3.5-5.0	4.5-6.6	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None
17:										
Newflat	D	Very high								
			Nov.-Apr.	0.5-1.5	>6.0	---	---	None	---	None
			May-Oct.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
18:										
Nimmo	D	Very high								
			Dec.-Apr.	0.0-1.0	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
19:										
Peawick	D	Medium								
			Nov.-Apr.	1.5-3.0	2.5-4.0	---	---	None	---	None
			May-Oct.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
20:										
Seabrook	C	Very low								
			Dec.-Mar.	2.0-3.5	>6.0	---	---	None	---	None
			Apr.-Nov.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
21A, 21B:										
Slagle	C	Low								
			Nov.-Apr.	1.5-3.0	>6.0	---	---	None	---	None
			May-Oct.	---	---	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
22:										
State	B	Low								
			Dec.-June	4.0-6.6	>6.0	---	---	None	---	Rare
			July-Nov.	---	---	---	---	None	---	Rare
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
23:										
Suffolk	B	Low								
			Jan.-Dec.	---	---	---	---	None	---	None
24:										
Tomotley	B/D	Very high								
			Dec.-Apr.	0.0-1.0	>6.0	---	---	None	---	None
			May-Nov.	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
25:										
Uchee	A	Low								
			Jan.-Apr.	3.5-5.0	4.5-6.6	---	---	None	---	None
			May-Dec.	---	---	---	---	None	---	None
26:										
Udorthents	D	---								
			Jan.-Dec.	---	---	---	---	None	---	None
Dumps	D	---								
			Jan.-Dec.	---	---	---	---	None	---	None
27:										
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
28:										
Yemassee	C	Very high								
			Dec.-Apr.	1.0-1.5	>6.0	---	---	None	---	None
			May	1.5-6.6	>6.0	---	---	None	---	None
			June-Oct.	---	---	---	---	None	---	None
			November	1.5-6.6	>6.0	---	---	None	---	None
Urban land	D	Very high								
			Jan.-Dec.	2.0-6.6	>6.0	---	---	None	---	None
DAM:										
Dam	---	---								
			Jan.-Dec.	---	---	---	---	None	---	None

Table 19.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Potential for frost action	Risk of corrosion	
		Uncoated steel	Concrete
1:			
Altavista	Low	Moderate	Moderate
Urban land	None	---	---
2:			
Augusta	Low	High	Moderate
Urban land	None	---	---
3:			
Axis	None	High	High
4:			
Beaches	Low	High	High
5:			
Bethera	Low	High	High
Urban land	None	---	---
6:			
Bohicket	---	High	High
7:			
Bojac	Low	Low	High
Urban land	None	---	---
8:			
Chickahominy	Low	High	High
Urban land	None	---	---
9A, 9B:			
Craven	Low	High	High
Urban land	None	---	---
10:			
Dragston	Low	Low	High
Urban land	None	---	---
11:			
Duckston	None	Low	Low
12:			
Johnston	Moderate	High	High
13:			
Lawnes	Low	High	High
14:			
Levy	None	High	High

Table 19.—Soil Features—Continued

Map symbol and soil name	Potential for frost action	Risk of corrosion	
		Uncoated steel	Concrete
15:			
Munden	Low	Low	High
Urban land	None	---	---
16C, 16D:			
Nevarc	Low	High	High
Uchee	Low	Low	High
17:			
Newflat	Low	High	High
Urban land	None	---	---
18:			
Nimmo	Low	Low	High
Urban land	None	---	---
19:			
Peawick	Low	High	High
Urban land	None	---	---
20:			
Seabrook	Low	Low	Moderate
Urban land	None	---	---
21A, 21B:			
Slagle	Low	Moderate	High
Urban land	None	---	---
22:			
State	None	Moderate	High
Urban land	None	---	---
23:			
Suffolk	Low	Moderate	High
24:			
Tomotley	Low	High	High
Urban land	None	---	---
25:			
Uchee	Low	Low	High
26:			
Udorthents	---	---	---
Dumps	None	---	---
27:			
Urban land	None	---	---

Table 19.—Soil Features—Continued

Map symbol and soil name	Potential for frost action	Risk of corrosion	
		Uncoated steel	Concrete
28:			
Yemassee	High	High	High
Urban land	None	---	---
DAM:			
Dam	---	---	---

Table 20.—Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Altavista	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults
Augusta	Fine-loamy, mixed, semiactive, thermic Aeric Endoaquults
Axis	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Sulfaquents
Bethera	Fine, mixed, semiactive, thermic Typic Paleaquults
Bohicket	Fine, mixed, superactive, nonacid, thermic Typic Sulfaquents
Bojac	Coarse-loamy, mixed, semiactive, thermic Typic Hapludults
Chickahominy	Fine, mixed, active, thermic Typic Endoaquults
Craven	Fine, mixed, subactive, thermic Aquic Hapludults
Dragston	Coarse-loamy, mixed, semiactive, thermic Aeric Endoaquults
Duckston	Siliceous, thermic Typic Psammaquents
*Johnston	Fine-loamy, siliceous, active, acid, thermic Cumulic Humaquepts
Lawnes	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Sulfaquents
Levy	Fine, mixed, superactive, acid, thermic Typic Hydraquents
Munden	Coarse-loamy, mixed, semiactive, thermic Aquic Hapludults
Nevarc	Fine, mixed, subactive, thermic Aquic Hapludults
Newflat	Fine, mixed, subactive, thermic Aeric Endoaquults
Nimmo	Coarse-loamy, mixed, semiactive, thermic Typic Endoaquults
*Peawick	Fine, mixed, active, thermic Aquic Hapludults
Seabrook	Mixed, thermic Aquic Udipsamments
Slagle	Fine-loamy, siliceous, subactive, thermic Aquic Hapludults
State	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Suffolk	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Tomotley	Fine-loamy, mixed, semiactive, thermic Typic Endoaquults
Uchee	Loamy, kaolinitic, thermic Arenic Kanhapludults
Udorthents	Udorthents
*Yemassee	Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults

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